

Officers mess.
OFFICER'S MESS - DERBY AIRPORT
NOT TO BE TAKEN AWAY.

TEE EMM



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for official use only

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



THE THIRD YEAR

WITH this issue we start a new Volume of TEE EMM. An awe-inspiring thought! It hardly seems credible to us that it is our twenty-fifth issue, that we have been going now for over two years. It seems a hell of a time to us, though perhaps not to you. Rather like the riddle "Why do married men live longer than bachelors?" To which the answer is, "They don't, but it *seems* longer."

We'd like, however, to take this opportunity of thanking all those who have sent us articles during the year, and who have so kindly refrained from caustic comment when we have thought it necessary to alter or re-write them. We hope we have been of service (it's what we're being paid for anyway) and that you have found these pages helpful. We also hope you will continue to do so throughout the coming TEE EMM year.

* * *

To commemorate the start of TEE EMM's third operational year, the Chief of the Air Staff has kindly sent us, and through us to all of you, the following message for the first issue of our Volume III.

"I hope that these Training Memoranda will continue to be as widely read and studied as they have been during the past two years. It is impossible to exaggerate the importance of constant training in ensuring the highest operational efficiency. We must never regard training as being confined to the early stages. Training never stops, and Tee Emm contains valuable hints and lessons for you all at all stages of your Air Force careers."

Air Chief Marshal, Chief of the Air Staff

A QUARTER CENTURY

On April 1st twenty-five years ago the Royal Air Force was born. It does not seem out of place to recall in this our April number that on that occasion His Majesty King George V, as General-in-Chief, sent the following telegram to the first Secretary of State for Air, Lord Rothermere :—

“ To-day the Royal Air Force, of which you are the Minister in charge, comes into existence as a third arm of the defences of the Empire. As General-in-Chief I congratulate you on its birth, and I trust that it may enjoy a vigorous and successful life.

“ I am confident that the union of the Royal Naval Air Service and the Royal Flying Corps will preserve and foster that ‘ esprit de corps ’ which these two forces have created by their splendid deeds.”

“ GEORGE R.I.”

The Tee Emm Crew comes to wish us a Happy Birthday



Reading from left to right : Sergeant Straddle (*Air Bomber*), Flying Officer Fixe (*Navigator*), Sergeant Backtune (*Wireless Operator*), Sergeant Winde (*Air Gunner*), and Pilot Officer Prune (*Pilot*).

THE ART OF INSTRUCTING

III

HAVING read our previous articles we presume that you have classified yourself as an instructor and amended your make-up accordingly. You have your class before you. You have all their individual types securely buttoned-up. Your lesson has been well prepared on the lines given. Your précis is in front of you. In short, you feel like Sir Oracle: "When I ope my mouth let no dog bark!" So far so good.

Well, you take a deep breath and ope your mouth. What issues forth? Is it a window-rattling bellow, a mouselike squeak, or a slumber-beckoning drone as of bees on a summer's day? . . . No matter for the moment: the main point is that whatever does emerge must be controlled and put to full use. This will help tremendously in putting your stuff over. You cannot all have the voice of a B.B.C. announcer. (Rather a terrific thought if you did: "Here is a lecture on Beam Approach and this is Robert Robinson starting it!"). But you *can* adjust the strength of your voice to suit the size of the room, so that you can be nicely heard by all. Let not the back rows have to cup their ears: let not the front rows be blasted out of their seats! Again, don't babble—but speak slower than in normal conversation. Vary the tone and pitch continually. We could tell you a little story here to illustrate this, but it will be sufficient to warn you not to let your voice develop into what may be called a "eunuchord" type. (This means all on one note—we hope; we may not have spelt it right!).

Now a few words regarding the instructor's attitude towards the class. First and foremost he must show *absolute enthusiasm for the job*. Remember that instructing is a psychological process, and even an instructor's frame of mind is easily communicated to his pupils. If he is enthusiastic, so will his class be enthusiastic. We realise that there is such a thing as that "browned-off" feeling, especially when the same stuff has been gone over for the umpteenth time. But if an instructor has this—and sometimes he can't help having it—he **MUST NOT** show it to his class. Even if he does normally walk about the Station with a hang-dog, hunted look, as soon as he opens the classroom door his whole expression and manner must change. He should positively radiate enthusiasm.

For never forget the Instructor is something of a god to his squad. They more or less sit at his feet and lap up the drops of wisdom as they fall from his lips. Don't betray this confidence in any way. Be careful to eliminate any duffgen which may tend to creep in. We are not thinking of this from a vital operational point of view at present, but simply because the pupils will eventually find you out, and their confidence in you will melt quicker than a snowball in a burning arsenal. You will be callously dubbed a "duffgen merchant" and difficult indeed will it be to live down the shame.

Because of this godlike devotion of the pupils—which definitely does exist, though neither you nor they would always think so!—you must also be careful that

everything you do and say is beyond reproach. Your whole attitude must be based on this. Take, for instance, punctuality. This is very important in instruction, though many instructors unfortunately fail to realise it. Always be in the classroom a few minutes before the lesson is due to begin and see that all apparatus required is there. (And, by the way, make sure that it works!) The instructor who is habitually late has really no right to complain of unpunctuality in his pupils. He will soon find that they model themselves on him.

Remember, too, that punctuality also applies to the end as well as the beginning of lessons, and in large training establishments this can become a vicious circle. A squad finishing late with one instructor starts late with another and so on. If for no other reason, then be punctual, to keep the time-table running smoothly!

Always stand when instructing. We agree it is so much more comfortable to sit, but it is also very slovenly, and further it is very difficult indeed to keep complete control of the class from this position. Besides it becomes an awful bind to have to jump up and down every minute to write something on the blackboard: as a result you eventually start cutting it out as too much trouble; and in the end the blackboard is completely neglected.

Face the class and look the pupils in the eye. Don't look at the back wall or out of the window. Let your eyes roam freely round the room looking at each pupil in turn. Don't develop the habit, like many instructors, of staring at one particular pupil, generally in the front right-hand corner. You will only make the poor chap embarrassed; he doesn't know what to do, and will finally end up by nodding his head in agreement with everything you say, or if he is a nervous type perhaps suddenly bursting into tears and having to be led from the room.

This brings up the very important matter of instructional mannerisms. These are due entirely to nervous tension. Every instructor, however experienced, suffers to some extent from this. The more virulent the disease, the more violent the mannerisms. And when they start to take the attention of the class from the subject, then they become definitely dangerous. The commonest mannerisms are based on movement or, to put it bluntly, simply fidgeting. The instructor plays with the chalk, or walks rapidly about the room, or rattles keys or money in his pocket. We have known an extreme case, where the wretched fellow actually tied and untied knots in his handkerchief. He used to hold his class spellbound, first waiting to see how long he'd take to untie it, and then how long it'd be before he started on the next.

Mannerisms, however, do not always involve movement. They can be just as annoying to the class when they are mannerisms of speech. How many instructors interject "O.K.!" "Got it?" or even "Fair enough!" into every other sentence. We recall one class who always gave their full attention to counting the number of times the instructor said "O.K.!" They even ran a sweep on it. We also once heard one member of a class agonisedly whisper to another, "If he says 'In effect' again, I'll have to get up and throttle him!" The pity of it all is that very often the instructor doesn't realise that he is doing or saying anything unnecessary. The only way to be quite sure is to invite a friend in to listen to you instructing and then

tell you afterwards what your mannerisms are. Or if you don't think a friend *will* tell you, ask an enemy!

Unfortunately there are no hard and fast rules that can be laid down for eradicating mannerisms. As confidence increases, so nervous tension decreases; and so naturally will they tend to disappear—provided always they have not become too deep seated. As a cure we suggest you stand with your left hand in your pocket with nothing in it to rattle, and your right hand behind your back, possibly gripping a table. This will safely anchor you down, and your right hand is free when you wish to write on the blackboard.

We might sum up as under:

“Manners maketh the man, but Mannerisms mar the master.”

DO MAPS GROW ON TREES?

IF you've never worried where your maps come from it's all to the good. Remember, it wasn't till *after* the Israelites had found that manna was grand stuff that they stopped questioning its source.

But it may come as news to you that the source of your maps in the U.K., *i.e.*, the Assistant Directorate of Maps in the Air Ministry, is really a “brown job.” It is, in fact, part of the Geographical Section of the General Staff, War Office, who first undertook the work after the last war. From starting in a small way it now has Map Officers in all the operational Commands and its daily movement of maps for the R.A.F. in the U.K. is round about 35,000.

The point of all this, however, is that owing to people thinking that the G.S.G.S. of the War Office and the A.D. Maps of the Air Ministry were separate organisations, one to supply the Army and the other the R.A.F., there has been confusion, overlapping and waste of time. Urgent air-freight demands for maps, for instance, have been received by the Air Ministry from the Middle East or Africa, when all the time the Military Survey people out there had large stocks of these maps specially for the R.A.F. and ready to be supplied at a moment's notice. This misunderstanding has now extended to the Dominions and America.

For these reasons the title A.D. Maps is to be abolished, and it is being publicised in A.M.O.'s and other places where the gen is handed out that G.S.G.S., and G.S.G.S. only, are responsible—as indeed they always have been—for supplying the R.A.F. with maps. Your map shop continues to exist under the same management, but under a name which is probably new to you.

Have you got that lost feeling?
Then try a couple of Astros (Advt.)

THE PARABLE OF PROON AND THE A.O.G.



IT came to pass in those days that at a certain Station of the People of Raf the Officer of the Equipment was granted Compassionate Leave by his lord. And whiles he was gone from their midst a certain officer of the pilot sort, named Proon, was put in his place that his experience might be broadened thereby. For he knew naught about not much and was a scorn and a derision among men.

And he went straightway to the Station Stores and sat himself down looking wise.

Now it came to pass after about three days that the Officer of the Engineers did get him on the blower and say, O Proon! Deliver me a Starboard Aileron for a Beaufighter numbered such and such. And verily, verily, I say unto thee that this matter is red-hot, for the Bus must be serviceable in forty-eight hours,

or the war will be lost and thou with it. If it be that thou hast not one such in stock, it were well that thou shouldst crack off an A.O.G. Get weaving!

Then did Proon summon from the Outer Office a damsel that worked there, a maid of the Waffs, fair to look upon, and say, Wilt thou crack off an A.O.G. for this matter. For well I wist what signifieth an A.O.G. It is that which men use when they want anything. Once it is sent, lo! the desired thing arriveth swiftly.

Oh, sir, replied the damsel, Verily, there is more to an A.O.G. than that—but I will tell thee of it anon. For a signal must be at once made out that this matter may be put forthwith in train. For with an A.O.G. speed is of the essence, as the Prophet Wodehouse truly sayeth. And she departed with a kindly smile at Proon, since she understood him. For had not her elder sister a child weak in the head?

After a time did the damsel of the Waffs return. And for the space of a half hour did she expound to Proon the mysteries of the A.O.G. And Proon did listen with an understanding beyond his usual wont, but did he not find her passing fair to look upon and her voice, was it not sweet as the birds of the air?

It worketh thus, said the damsel, but I'm going to tell you in plain English because I'm damned if I can do this parable stuff properly and the Editor's not going to *make* me try either, so there! (*That's O.K. with us, Sister, we're feeling the strain too: Editor.*) An

A.O.G. usually starts with the Engineering people. They just hate to have an Aircraft On Ground when it might be flying, and if the Servicing Echelon is held up for spares for an urgent job, they ask us here in the Stores to get whatever the thing is.

If we can't supply it we make out an A.O.G. signal for it right away and hand it over to Signals. It goes priority, of course, and usually arrives at the Maintenance Unit in the evening. There it is passed to the A.O.G. night staff in the Stock Control Office, and they can see by their cards whether they've got what's wanted. If they have, the demand goes out to the Equipment Site concerned and they deal with it before they touch any of their other jobs for the day, and send it off by special transport. I may say they get scores of A.O.G.'s because they supply all the units in their area and it's a fairly big one.

But if the M.U. hasn't got the things they send the signal off at once to the Master Provision Officer (or M.P.O.). He has a record of the stocks of those particular items at *all* the M.U.'s, and if his night staff find that one of the other M.U.'s has a stock, they send the signal off there straight away as a demand for urgent issue.

If by any chance none of the M.U.'s has it, the M.P.O. sends the A.O.G. to an aircraft manufacturer and asks him to send the spares direct to the unit—that's called a Diversion Order. Again I may say that there are generally hundreds of A.O.G.'s at the manufacturers. So you see how really important it is to treat them seriously and not start up the A.O.G. machinery unnecessarily; and not, as I think you said just now, sir,

treat it as something you automatically use when you happen to want anything. Now therefore, O sir, dost thou not comprehend the business to the uttermost of thine intelligence?

So saying she departed from Proon's presence, leaving him to ponder all these things in his heart. Truly, as the Prophet sayeth, had she spilt a bibful.

And it came to pass that while he pondered, a thought came to his mind. Was not his own Flight Commander a known Wangler and possessed, moreover, of the Instinct of the Squirrel? Did he not hoard bits and pieces, keeping them privily up his sleeve against a rainy day? And verily had not he himself but recently glimpsed in the Lock-up of the Flight, that which looked indeed like a Starboard Aileron for a Beaufighter? Moreover, as Officer of the Equipment, albeit temporary, had he not the right, even against the Flight Commander's wishes, to inspect all Lock-ups?

Whereupon he rose and sped away, swift as a bat from the nethermost pit.

And it was even as he had said unto himself. For lo! there was a Starboard Aileron there. And he did straightly command two Erks to seize it and bear it unto the Officer of the Engineers.

And the Flight Commander went out and wept bitterly, for he knew he had erred in thus hoarding Equipment.

But the Officer of the Engineers marvelled greatly and said, Verily, verily, most men, even with an A.O.G., take from one noontide unto another to produce a spare, but thou hast done it in two hours. Great is the name of Proon!

Yet Proon in his pride, and because his skull was fashioned of solid bone,



forgot to cancel the A.O.G., upon which all the M.U.'s and M.P.O.'s were labouring all night. And when they found out that Urgency had been attributed to that which was in no wise Urgent at all, being all the while on the Station, the name of Proon and of the Station stank in their nostrils.

Take heed, therefore, O ye of little brain and use not A.O.G.'s wrongfully. Take heed, also, O ye who liken yourselves unto Squirrels and wrongfully hoard Equipment. For ye shall all be cast into outer darkness. And there shall be weeping and gnashing of teeth.

WRITE TO US

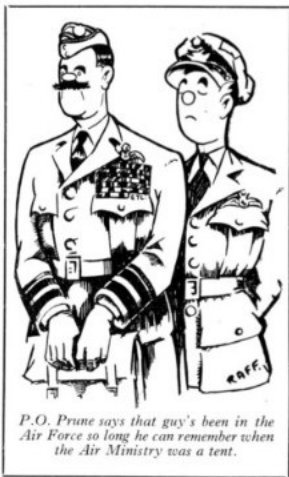
IF you want to increase or reduce your monthly allotment of TEE EMM, the Editor is the person to write to.

It's the unit's business to ask for as many copies as it needs for proper internal distribution on whatever basis it thinks fit. It's the Editor's business to see that that number is notified to A.P.F.S. as a change in distribution.

But do write to us, not to A.P.F.S. They cannot alter the distribution except at our instruction and so they only send your requests on to us, and time is wasted. We mentioned this in A.M.O. N.1445 of 1941, also in TEE EMM's for April, 1942, June, 1942, and January, 1943, but A.P.F.S. *still* get requests direct. This shows somebody is not reading A.M.O.'s, and while this is quite understandable to us, we are a little shattered to think somebody is also not reading TEE EMM!

So if you want to vary your monthly issue of TEE EMM at any time, or need back numbers to make up sets, write direct to Editor, Tee Emm, Air Ministry, London.

NOT—in case we haven't made ourselves clear—to A.P.F.S.



P.O. Prune says that guy's been in the Air Force so long he can remember when the Air Ministry was a tent.

HINTS TO NEW W/OPS

THE main object of education is to teach you how to learn. The main object of a special course is to teach you how to set about becoming an expert in a special subject. It does not turn you into a ready-made one. When a man has been through many months of expensive training as a Wireless Operator and joins a Squadron for the first time, he does so as a specialist, not as an expert. Whether he becomes an expert and of full value to the rest of the crew, depends on what he does on the Station—on whether he sits back and drinks beer, or gets busy and drinks in information.

Once he has reported to his C.O. and his Flight Commander, he will find that the Squadron Signals Officer is the person who is most important to him and to whom he must go for information, help and what have you, in connection with his work. Popping in for a word with the C.O. or the Station Signals Officer just isn't done and is apt to be unpopular with those concerned; and indeed, even with those who are not.

Apart from the Squadron S.O., there will be a lot of "old hands" who have learnt much by experience and can save the "new boy" from many a prospective boob. And nearly all of them like doing

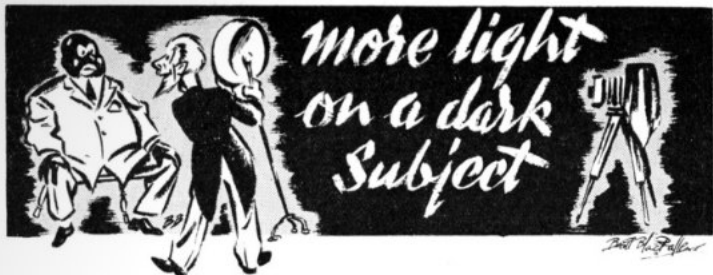
it! It's surprising how people enjoy giving information and help to newcomers if approached in the right way. It gives them a feeling of importance—and we all love that. So never be afraid of asking the old-timers for help or hints.

Another good thing to do is to get around to your W/T maintenance section. They, after all, service your set. In fact, in their eyes it is *their* set that you muck about with and, perhaps, get out of order when you are on ops. If they are decent chaps—and, you'll find they mostly are—they'll take a pride in your, or *their*, set—with the result that the more interest you show in it, the more they will be pleased; and so the more you will learn. And if you are called upon to do D.I.'s, take it as a really serious matter; your life and the lives of the rest of the crew with you, may depend on how you have done it.

When you come to make your first trip—or any other for that matter—be sure you have everything with you, including a spare pencil, and make a special point of being punctual. For remember, when you are on ops. you are no longer *you*, but part of a crew, and in any good crew each member depends upon every other one.



"Never be afraid of asking old-timers for hints!" (But choose the right moment!)



HOW IMPORTANT IS IT ?

No one would question the importance of accurate bombing nor the obvious advantage of knowing within a few hours of a raid how successful it has been. While much useful information comes from the observer, it is impossible for him, in the height of a bombing raid, even to know with certainty that he is over the right target. Jerry is always building decoys. But given a photo of the ground while the bombs are actually falling and, no matter how poor the quality, provided a few broad landmarks are recorded, the intelligence wallahs can plot it and at once assess the accuracy of the bombing. Given such a photo from each bomber, a whole area can be plotted and the effectiveness of the raid assessed. It is such a scheme which gives a "second visit" an even greater sting than the first since special attention can be given to the "tender spots" of the target.

HOW DOES IT AFFECT ME ?

We don't need to remind you that a picture showing the accuracy of your night's work is for you, at least, assurance made doubly sure. Just as the target at a rifle range is taken as the proof of the marksman's proficiency, so your photos will establish your proficiency in the eyes of the "Old Man."



"Good shooting!"

CAN I ALWAYS GET A GOOD SHOT ?

"Yes," if it wasn't for one or two things that can't be controlled. The weather can be awkward, the target might be a smoking bonfire by the time you get there—and both cloud and smoke make a pretty good camouflage. But a great deal can be done to increase the chances of success when such things don't interfere. You can't expect to get a photo of the target if you are

standing on wing tip or your nose is pointing skywards when the flash explodes any more than if you forget to select the camera and flash.

WHAT MUST I DO TO GIVE THE CAMERA A CHANCE ?

Five simple rules (but keep them better than you do the famous "ten") :—

1. Check with the photographer and armourer that the installation and setting of your camera and flash are correct before take-off.
2. Don't forget to select the camera and flash before bombing (if you aren't lucky enough to have a type of aircraft where this is done automatically).
3. Steady and level (fore and aft and laterally) your aircraft as quickly as possible after the first red light and keep it so until you are certain that your flash has exploded or the second red light comes on. After this, well, you don't need us to tell you to dodge 'em like hell.
4. Operate the camera from the bomb firing key once as soon as possible after the second warning light appears. This is to preserve that picture of the "Cookie" which may be on number 6 frame.
5. Give the photographer who removes the magazine all the gen you can about the operation of the camera and the weather conditions. Also don't forget the camera when you are interrogated.



FIVE SIMPLE RULES

HOW AUTHENTIC IS MY PLOT ?

It is said that the camera cannot lie, but we've known it to be pretty dim and if you don't help it out it can also be misleading. Of course when there are a lot of planes on the raid, the intelligence wallahs can do some cross-checking ; only do report it when you're not too sure about the camera's performance. Given a chance the night photo can be "spot on" in accuracy, but if you don't remember to select the camera until about five minutes after you have released your bombs, and then forget to mention it, someone might get the idea that you've blown up the local duck pond instead of the gasworks.

WHAT HAPPENS TO MY SUCCESSFUL NIGHT PHOTOS ?

As soon as the films are processed, prints are rushed to the Station, Group and Bomber Command and the plotters get busy. Bomber Command are probably brewing another plot and consequently must have the "gen" as soon as possible. Finally they go to C.I.U. Here the photos are put through an examination that even the C.I.D. might goggle at. Nothing is too insignificant



for their scrutiny, even a stray finger-print is viewed with suspicion in case it turns out to be the Kaiserhof in disguise! Talk about blood out of stone . . .

IF I DRAW A BLANK WHAT COULD HAVE GONE WRONG ?

First don't get all het up because you know you've done *your* part and yet all the photographers can show you is a few blank frames. Second, don't start blaming them or the camera! If you have observed the five rules as religiously as Scotsmen keep Burns night, then it's probably no one's fault and can be put down to gremlin action.

WHAT HAPPENS TO THE SO-CALLED FAILURES ?

It's very rare indeed, by the way, that the film is a complete flop. As long as the camera is looking earthwards, there's a very great chance that it'll pick up something. Suppose the flash has exploded too soon or not at all, then there are generally fires, bomb bursts and gun flashes. The camera is "open —" for about 8 secs. over the target and acts as a film recorder. The fires look like worm tracks and a 4,000 pounder may even do the job of a flash in lighting up a few landmarks (apart from its tendency to remove them!) With failures you have a chance to examine them with your bombing leader who ought to be able to give you a pretty good idea of what happened.

HOW DO THE FIRE PLOTS WORK ?

Supposing your flash has failed to explode. The target already resembles Blackpool in the good old days and is, to mix our metaphors, like the fleet—well "lit up." Your photo will show a great many squiggles which, if taken at their source, will show a definite pattern. Another photo taken earlier by another plane would show part of the pattern but certain points would be missing (*i.e.*, the bombs or incendiaries are on their way); one taken later might go even better if the smoke isn't too thick. Hence intelligence can not only plot your position but also estimate the time you dropped your load relative to the other planes.



There's a very great chance that the camera will pick up something.

Furthermore, if you are dodging all over the place, then the fire tracks will show the method and success of your evasive action and with systematic analysis, can be given in terms of banks and turns, etc.

WHAT OTHER INFORMATION COMES OUT OF THE NIGHT PHOTO ?

Here's a list—but don't get the idea that *every* night photo yields all this information :—

Already mentioned :—

- (a) Target identification.
- (b) Evasive action.
- (c) Bomb damage assessment.

Others :—

- (a) Concentration or "build up" of a raid.
- (b) Diversionary attacks.
- (c) Bomb strikes.
- (d) Searchlight concentration.
- (e) Battery positions.
- (f) Extent and distribution of fires.
- (g) Decoy identification.

HOW DOES MY CAMERA WORK ?

It's as simple as ABC and pretty nearly foolproof, bearing in mind the five simple rules. The flash and camera control are set before take-off to the anticipated height of the aircraft for bombing. When you've selected the camera and flash and pressed the bomb-release button, the flash is released with the bombs. This also starts the control which is a type of variable delay switch. According to the height set on the control, there is an interval when the control just ticks over and the flash falls. The flash is timed to explode at 0.6 of the aircraft height, but approximately 8 seconds before it is due to explode, the control switches on the camera mechanism for sufficient time to allow it to wind over two frames of film. (Here you get your first wink from the pilot's warning light to tell you to fly straight and level.) It takes about 4 seconds to wind over two frames. The flash explodes and after a further 4 seconds the control again operates the camera to wind over two more frames of film. (Here you get your second wink which gives you such blessed relief.) The 8 seconds open frame allows for inaccuracies in fuze burning times and changes in altitude. A few seconds later the bombs will reach the target that you have just photographed.

WHAT ARE WE DOING TO IMPROVE NIGHT PHOTOGRAPHY AND WHAT CAN I DO ?

If you were told that all the leading scientists of the country were working to one end—the betterment of night photography—you would suspect exaggeration. But everything possible is being done to make it an automatic and reliable weapon. If you are interested in the sort of problems facing the development of the night camera, its application and the interpretation of the results, a full story is shortly to be issued (as P.A.P. 104), lavishly illustrated and bound in good quality cardboard. And this is one way you can help, if you know the story yourself. But if you only remember the five rules, these notes will have justified the amount of Tee Emm space it has taken up.



IF PRUNE CAN DO IT, WHY NOT YOU?

WALKING down Piccadilly the other day we saw a sight which staggered us. And that definitely *is* something, because we're not the type to be staggered by anything we see in Piccadilly.

To make a short story long, we had been standing at a corner watching R.A.F. officers go past. Amongst other things we were musing gently on the extraordinary variety of ways in which officers' uniforms can be worn, and soon we found ourselves thinking how extremely sloppy uniform looks if not worn properly. More so than civilian clothes, because civilian clothes are of all types and shapes and colours, and can be worn in various ways, while uniforms are meant to be all worn alike. The very word "uniform" tells you that.

Now one of the big ideas in dressing all members of a Service in the same clothes is that they can not only look alike but also look smart. And when something that is meant to be smart is badly worn it always appears more sloppy than something that isn't meant to be smart. All of which is merely a long-winded way of saying that you can wear many types of civilian great-coat in many ways, but there is only one way of wearing an R.A.F. great-coat—and there is only one type of great-coat. Or you can wear, say, a civilian felt hat bashed in and out and round about in any way you please, and no one notices it much; but when you wear a uniform cap with the stiffening wire pulled out and the thing drooping down all round your head like a tired pancake, you do get noticed.

And the notice is unfavourable—

though you may think the general effect pretty dashing. Apart from its being unfavourable to you personally—because we are told that the Provost Marshal's boys can pull you up for it—it is also unfavourable to the Service.

On this subject of uniform and the Service, we had in TEE EMM, exactly a year ago, an article called "What's in a Uniform." (What was in that particular uniform turned out to be Waff Winsum, but that's neither here nor there—"Wish it was *here*," says P.O. Prune.) We'd like to repeat an extract.

"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 turnout, 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."

In other words, tidiness and smartness are a reflection of efficiency. A badly-turned-out officer of the R.A.F. walking down Piccadilly just behind a smart private in the Army is a bad mark against the whole Air Force. The subconscious implication is that the Air

Force is less efficient than the Army.

Another small point, but worth considering, is that it is hardly fair on the many airmen who may see a slovenly officer, and think to themselves "Why should I have to be smart when our officers go around looking like nothing on earth?" So they cease bothering and pretty soon get picked up by the Service Police, who funnily enough don't take that as an excuse.

To continue making a short story long what we want to emphasise—at risk of being boring—is that there is no real *merit* in being untidy. Your uniform is not really yours in the sense of the word: it is the King's, and if you can't show pride in it you aren't showing pride in the King's service. And if you can't show pride in your Service you oughtn't to be in it.

Particularly should you show this pride when on leave or otherwise moving about among civilians and sister Services. What you do on the Station depends largely on your Station Master; but in Piccadilly it depends on yourself—up to the point where it may suddenly and unpleasantly come to depend on the Provost Marshal. A friendly warning!

Which brings us to what we started to tell you about; *i.e.*,

the sight which staggered us in Piccadilly. It was P.O. Prune, up in town to keep a date with a frippet. And for once he was *smartly dressed*.

No one except us recognised him, of course, in that disguise; but in case you don't believe it we took a photo of him which we publish herewith!

Still, if even Prune can do it, why not you?



REMEMBER THAT "SILENCE IS GOLDEN"

Maintain R/T silence unless you have something important to say. Always say who you are; speak slowly—if it is really important speak slower than usual. This is quicker than having to repeat.

BILL!

THE proper title of this article isn't "Bill" at all. When it came kiting gently into our IN Tray in its original form it bore the overpowering title of "Of Interest to Bomb Aimers on Stirling and Halifax Aircraft and Lancasters."

Well, we meantersay . . .

We blinked at it a bit and decided on "Bill" for short. Shorter, if you see what we mean. Not so long, as it were. Anyway the article is all right.

A number of heavy bombers are now fitted with a gadget known as the "positive-fusing device." The object of it is, as you may have guessed, to prevent the bomb load being dropped "safe."

The gadget is incorporated in the bomb-panel, and consists of a recess in which the bombing-tit is inserted and held by an electrically controlled lock, the release being connected to the fusing switches.

In order to release the bombing-tit, the fusing switches must first be set to the "fused" position. When this is done, an electrical circuit is made which sets the device working, releasing the bombing-tit from its insert and fusing the bombs.

Most bomb aimers are familiar with their drill "on crossing the coast out." They will remember particularly to fuse their bombs. But, the question often arises: are you certain that the bombs really *are* fused?

NOW is the time, now while you are at the English coast, to make sure, and this is where the positive-fusing device comes in. It is of what is called "paramount importance" to release the bombing-tit from its recess then and there by pushing down the "NOSE" and "TAIL" fusing switches.

Supposing, however, it fails to come out? Well, your bombs aren't and cannot be fused "live," *unless* you take Proper Action.

Proper Action is not engaging in a tug-of-war with the lead wire. Nor will you get the bombing-tit out of its cranny with a nail file. Even the official manual release plunger isn't the answer.

The most probable remedy will be found in the fusing circuit fuses which are in two small black boxes below the fusing switches on the bomb panel. In each box are two-fuses. The spare fuse is the one in the lid of the fuse box. You merely replace the dud fuse with the spare and, other things being equal, that's all the remedy necessary. Now the bombing-tit can be extracted from the device, and you carry-on to the target, secure in the knowledge that your load is fused "live."

Above all, do remember to get the bombing-tit out of the positive-fusing device **AT THE COAST**, or your trip may be a wasted effort.

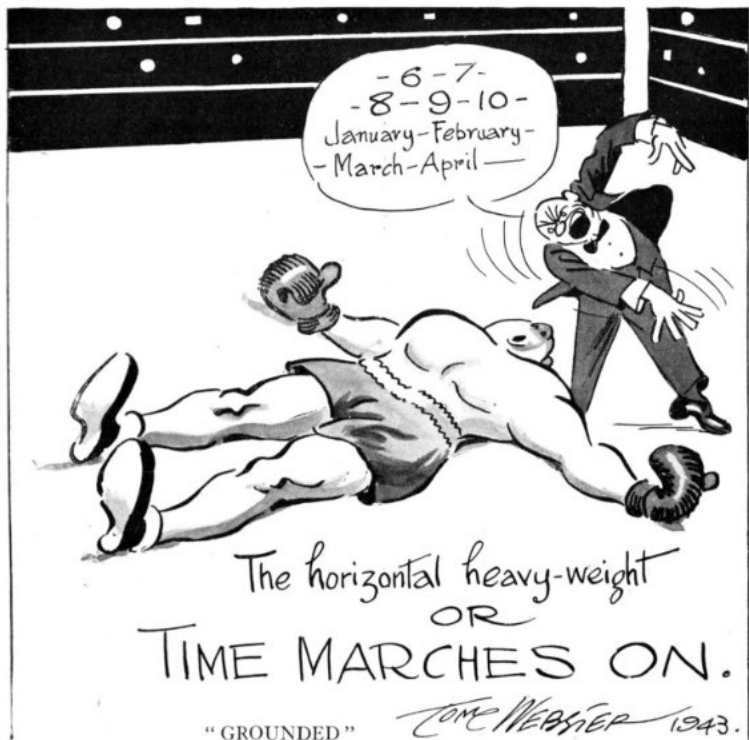


Service Terms Illustrated

by

Well-known Newspaper Cartoonists

No. 3. TOM WEBSTER of the Daily Mail.



THIS MONTH'S PRUNERY



THE MOST HIGHLY DEROGATORY ORDER OF THE IRREMOVABLE FINGER (Patron: Pilot Officer Prune) has this month been awarded to F/Lt. — for Touching Faith in his Ability to Estimate Altitude by Eye.

Returning from a Specialist "N." Course in Canada as Navigator of a large aircraft, he discovered well out over the Atlantic that he had left his Sextant in Newfoundland.

The M.H.D.O.I.F. has also been awarded to P/O — for Overwhelming Tenacity of Purpose.

When told he was about to take off down wind he replied: "But we've taken off this way for the last ten days!"

TUG PILOT



The Tug Pilot's job is not quite the piece of cake that most people imagine; it calls for a certain amount of skill, accurate airmanship and good Instrument Flying. And these can always be improved by practice. Here are

a few Helpful (we hope) Hints.

Assuming an average practice flight, we'll start with taxiing into position. This needs some attention: with a Whitley 'Tug, for instance, your tail sticks out further than you think, and there's a possibility that sundry erks manipulating ropes get swiped sideways by the rear turret. Also you must remember to get dead in front of the Glider, and taxi up till the end of the rope is just about level with your tail. It can then be

attached to the towing yoke without the ground crew having to dig for victory to get at the Lobelle Release, upon which you have nicely parked your rear wheel.

The only additions to the cockpit drill are to see that the handle, knob or what-not of the Tow Release gear is well home. If you have a boost cut-out, open it up ready for as much extra boost as is necessary; if no boost cut-out, then be prepared to go through the gate. A few degrees of flap helps the take-off, especially with heavy load.

Cut down your nattering on the R/T to the briefest possible: all that's necessary is: a Statement of Exercise from the Glider; an Acknowledgment by the Tug; "Ready to take up slack" from the Glider; and finally from the Tug, "Brakes off" (a subtle reminder to the Glider Pilot that he has forgotten his cockpit drill!); and "Taking up slack."

Now appears the "Towmaster" who

stands in front of the Tug and waves Red and Yellow Flags at you. His signals are relayed to the Glider where another Flag Man stands. The signals are simple: Yellow Flag waved below waist means "Take up slack," and Yellow Flag waved above shoulder means "Slack now taken up. O.K. to take off." Red Flag held above head means "STOP." (Red, yellow, and blue flags with two rockets, a port-fire and a twenty-one gun salvo probably means "Look out! Prune is at the controls!")

Once you begin to open throttles for taking up slack, they should not be closed again (except in emergency). It is no good getting slack up, then coming to a full stop—even though you want to adjust your seat or get out your packet of chewing gum—because two things may happen. First, as the Glider has started to move, the tow cable may get over-run by the wheel or wheels and get the wrong side of them. Then when the Tug goes ahead again, the Glider gets towed off all sideways and has to release. And second, as the Tug, after taking up slack, has got "way on" you don't want to lose it. You need it to make your take-off run shorter by progressive opening of throttles directly you feel the tension on your tail. We say "progressive" because if you give the "Goods Train jerk" by banging open the throttles, the troops in the Glider will be spending the first part of their trip picking themselves up off the floor.

During take-off, if your aircraft has a tendency to swing, it'll probably be increased by the Glider getting out of alignment with you from time to time. DON'T USE BRAKE to counteract this. It uses up Aerodrome and you want

quite a lot of Aerodrome for a good take off.

Get airborne about five to ten miles per hour above your normal speed and climb away at a steady rate of climb, raise flaps when convenient and carry on as if you had no Glider on the back.

Level flight presents no difficulties, except that it *is* infuriating not to be able to trim your aircraft to fly straight or level for a single minute. It is constantly being pulled off course or out of level by even the best Glider Pilot, and all you can do is to thank your stars that it isn't much worse. Correction on your part, of course, is just as if you were on your own on a bumpy day, except that if the Glider makes the Tug swing, correction by rudder is not very effective and is highly tiring. Banking aircraft is the better way to overcome this.

Turns should be gentle and accurate. Cut out slipping in and other forms of sloppy flying; in fact, good accurate flying is essential for any Tug Pilot. Air speeds must be constant; it's no good going along at 90 m.p.h. one minute and 140 the next. The Glider may over-ride his tow rope and you will have a slack rope and then a horrid jerk as the Glider slows up again. This jerk may snap the cable, and at best is very unpleasant for both parties.

For the same reason, if you see a large cloud ahead, don't go into it. The Glider is usually blind and helpless on tow in cloud, where it cannot see the Tug; and if you suddenly decide to throttle back and dive out of the cloud, you may find yourself forming on the Glider which has come out first! If you have for any reason to descend in a hurry, keep the same air speed, and don't

stall the Glider by climbing too slowly. That's just another little joy for the poor bloke behind.

Courses must be more than usually accurate, because, as we said, you are always being pulled 10 degrees either side of your course setting by the Glider. And heights too must be kept very accurate, because releases from different levels ought to be *at* the levels asked for and not 50 feet higher or lower. In the case of a Low Release at 250 feet, for instance, an extra 50 feet on either side makes quite a lot of difference to the Glider's approach after release.

All this applies particularly to Night Flying, where accurate Instrument Flying on take-off and after, is of paramount importance. The first 300 feet are fairly tricky, and a badly positioned Glider can cause quite a hectic few seconds immediately after take-off.

Correct positioning by the Tug on the selected Aerodrome for release at different heights is extremely helpful to the Glider. Obviously if he has to release on the down wind leg of a circuit, it is no good lugging him along diagonally across the downwind leg on an ever widening tangent to the circuit. Nor on a cross wind release is it helpful to bring the poor Glider Pilot over the top of the aerodrome boundary so that he has to do a 360° turn to get in when released. Parallel to the Aerodrome boundary is the obvious answer and within gliding distance all the way.

So you see that the Tug Pilot's job is very definitely one that requires a high degree of Airmanship, Pilot-Navigation and Instrument Flying; and above all recognition of the fact that the essential core of the whole business is—

Consideration for the Glider.



LINES FROM PRUNE'S SHOOTING GALLERY



In our Christmas number we printed here and there, under the above title, some of our gallant Pilot Officer's overheard remarks. We seem to recall we offered a prize for the best one

sent in by our readers before the end of February.

Well, we've had a grand selection sent along—funnily enough in a few cases the same line arrived from two or three sources—and we think it's worth while printing some of the better ones below.

A specially selected Judging Committee of highly intelligent types, plus a few not so intelligent, was convened at a delightful meeting place round the corner, which for security and other more selfish reasons we cannot disclose, and the matter was thrashed out to the last man and the last round. When the last man had paid for the last round, the prize, a bound Volume I of TEE EMM, was formally awarded to a Pilot Officer in Bomber Command. A popular win!

And now here are some of the better entries:—

“ I was flying so low my navigator had to stand up to see over the waves.”

“ It's not really blind flying : the instruments aren't in Braille.”

“ I never can keep my windscreen clean for long : I think it's the smoke of the Bremen fires.”

“ I've spent more time rolling off the top of loops than you have flying straight and level ; so pipe down.”

“ I identified the target as Saarbrücken by the letters S.U.D.C. on the side of a fire-engine ; for Saarbrücken Urban District Council, of course.”

“ I was flying so low over the Channel that the spray got in my pitot tube and the A.S.I. was registering in knots.

“ My landings are always so good that I have to call up Control by TR9 to find out if I'm on the deck !”

“ Rod and line fishing ! Why, I borrow a F.A.A. Swordfish and use the deck hook.”

“ I bounced so high when I first touched down that I had to slip off height to get in !”

P.O. Prune has just looked over our shoulder and swears he never said a single one of the above and that any one who thought he overheard them is a liar. “ What, me shoot a line ?” says Prune. “ I've no need to !”





TEE EMM'S Brains Trust

Tee Emm, being an official publication, everything in it appears with the approval of the Air Member for Training and represents official views on policy. This page, however, we reserve for occasional correspondence—criticism, comments, suggestions, queries, and so on—to which we have tried to dig out a reply.

The article "Flak and the Bomb Aimer" in February Tee Emm has caused a certain amount of comment. Below is an excellent letter which has come to us through Bomber Command putting forward strong grounds for disagreement.

"Before pointing out the impracticability of the recommendations made in the article 'Flak and the Bomb Aimer,' I would like to stress one important fact concerning bombing. It is useless having the best aircraft in the world, carrying enormous bomb loads, and manned by excellent crews, going through enemy defences, fighter belts, etc., if when they get to the target their bombs are flung away uselessly. This, unfortunately, too often occurs. No amount of successful effort is of any value whatever unless the bombs find their mark at the other end. This has always been, and still is, the greatest problem of Bomber Command. Great strides have been made in overcoming this problem. Better means of target identification have been evolved. More bomb-aiming practice has been given. Better bomb sights have been evolved. And, what is more important, lecture after lecture has been given to Captains and Bomb Aimers explaining to them how little evasive action is really necessary in order to avoid predicted flak, and how important it is to concentrate on the crux of their sortie—accurate bomb aiming.

"Unless you hit the target, you are wasting your country's petrol and risking your crews' lives—all unnecessarily.

"The article in question pointed out quite correctly, that there are two kinds of flak—the barrage and the predicted, and that nothing can be done about the barrage variety. So far so good, but it then went on to suggest that to avoid predicted flak the solution is to do a 90° turn in each direction a little more rapidly than possible! I will quote from the article: 'But the solution to the predicted is 90° turns. These turns must be made every thirty seconds or less, and be at least rate two.'

"To change from a rate two turn in one direction to a rate two turn in the other direction every 30 seconds in a heavy bomber is just impossible. Even if it were possible the resultant course of the aircraft would be as shown in Fig. 1.* From this it can be seen that the forward speed of the aircraft would be only slightly more than half the normal speed. This means that the aircraft would be in the enemy's defences about twice as long as is necessary.

* See next page.



Fig. 1.

It would, moreover, be completely impossible to bomb aim, and, quite incidentally, our losses would probably be serious due to collision. I would point out that a 90° rate two turn takes 15 seconds, and yet the author of the article goes on to point out that in the obviously impracticable map reading which would result, allowance must be made for the appreciable distance taken "to turn in" which he says may be as much as a mile or more; in actual fact a 90° turn in 15 seconds at our normal speeds has a radius of just very slightly over half a statute mile.

"I suspect that the intention of the article was to describe a method of approach to an aiming point which has been used in the past. In this method, an approach was done with mild evasive action to a position abeam of the aiming point. At this point, both the pilot and the bomb aimer can see the aiming point and a right angle turn then throws the predicted flak off sufficiently to make a straight and level run on to the target a fairly safe one. This method, is however, no longer in use in Bomber Command.

"Now to be a little constructive it is necessary to describe what is the recommended form of approach to the target. There are several known facts which must be kept in mind.

- (1) Violent evasive action must be avoided because it makes the Bomb Aimer lose his sense of direction, and it is likely to cause gyros to topple (including the Mark XIV bomb sights if the nose is pulled up too sharply).
- (2) Slight evasive action is necessary to avoid predicted flak and to permit the Captain to see some ground detail, thereby cross-checking and aiding his Bomb Aimer.

- (3) Direct approach with maximum simplicity makes the timed run on to the target more satisfactory and the E.T.A. more reliable as a check against Bomb Aimer's mistakes.

"A little arithmetic will show that mild evasive action is all that is necessary. For an aircraft flying at 16,000 feet the time taken for an R.D.F. or visual fix by the gunners for the setting of their fuses, loading and firing and for the time of flight of the shell, amount to roughly 50 seconds. If the aircraft has in that 50 seconds turned off 15° from the course previously steered then his lateral displacement will be about 4,000 feet—quite enough to give any predicted flak a very wide berth (forward travel in 50 seconds = about 15,500 feet, and $15,500 \times \sin 15^\circ = 4,000$ feet approximately). The danger area of a flak burst is only a matter of 100 feet or so. It can be seen therefore that '15° stuff' combined with changes of height is sufficient to throw off any possibility of predicted flak causing danger. Even if the time period of 50 seconds were completely out of phase then the safety margin would still be roughly 2,000 feet.

"We must hit the target. To do so we must keep our evasive action within the bounds of sanity. However strong the urge, Captains must restrain themselves; they must do the job.

"In conclusion it is pointed out that one of the main objects of flak is to put off the Bomb Aimer. The article 'Flak and the Bomb Aimer' is in danger of working to a similar end. Let's go in and bomb."

REPLY. The above letter arrived a little too late for us to secure any further official comment as to whether the article was quite as detrimental to the poor Bomb Aimer's chances of success as the last paragraph seems to suggest. We hope, however, to publish something next month.



FINGERS AREN'T ALWAYS IRREMOVABLE

The old story of the armour to beat the gun, and then the gun to beat the armour has been repeated in the case of the barrage balloon. Explosive cutters are now fitted on the leading edge of our bomber aircraft, the general idea being that as the balloon cable slips into the cutter-housing it trips a trigger which explodes a cartridge. The cartridge, in turn, fires a chisel towards an anvil and frees the aeroplane by cutting the cable. All this is a Good Show.

On the other hand, it may turn out to be a Bad Show—that is, if it isn't after all a balloon cable which receives attention but an inquisitive finger.

For fighter aircraft are not fitted with this device, yet Fighter Stations quite often have our bombers dropping in on them, to refuel, or pass the time of day, or ask where they are, or simply have lunch. And A.C. Plonk—as a fighter aircraft mechanic and so not knowing much about bombers—may easily, while clambering over one such, stick his finger into the slot which was all set to receive a balloon cable. Result: removal of the finger.

Remember this, bomber crews who land at a Fighter Station. You may know all about your cable-cutters, but others may not. The finger may be that of an inquisitive Plonk, who wonders what the slot is for; or of a quite innocent Plonk, unable to avoid in the dark something he knows nothing about. But the removal will be just as neat and expeditious. So warn all concerned! Don't let them think—afterwards—that it was a practical joke in poor taste on your part.

If you *don't* warn them, it'll be your fault if a valuable mechanic is put out of action.



“THERE'S A WINDE IN THE TURRET, BROTHER!”

SHOULD his pilot make a heavy landing, there is nobody more ready to point it out than our Sergeant Winde. “Have a heart, skip!” he says when there's a bit of a bump, as if the pilot had put the aircraft down badly with the deliberate intention of shaking Winde's teeth out through the top of his skull. And the poor pilot has no answer—except to tell Winde to shut his trap—for he has no chance of pointing out Winde's frequently far greater ineptitude in handling his own machine, namely his turret.

But Justice is coming to the pilot's aid. Winde is being slowly, if ungrammatically, caught up with. In those Brains-behind-the-Bombers there is now blooming an Idea. By an ingenious cinematographic device it will shortly be possible to test Winde at work; it will be proved to all the world, beyond a shadow of doubt, whether he can—or can not—satisfactorily manipulate his turret. And the laugh may then well be with the pilot.

Sergeant Winde looks both surprised and a little apprehensive at this news. “Manipulate my turret,” he says. “Of course, I think I . . . but it's not *my* fault if I haven't been taught properly.”

We tell Winde he *has* been taught properly—as far as instructors *can* teach such a subject. But the teaching of it is not only in their hands—it's also in Winde's.

They can't stand over him all the time. They can't inject skill, like a doctor injecting a drug. Winde must do a lot of the teaching himself. Wasn't there a spotlight trainer at Winde's A.G.S., and O.T.U. and H.C.U.? Wasn't there a training turret also, provided by a kindly Government and a harassed Equipment Officer? But didn't Winde spend most of his time therein merely counting the minutes before he could leave, or else dreaming of beer?

“Oh well,” says Winde, skilfully dodging the issue. “That's all past history. I'm in an Operational

Squadron now, and I don't have to work no more!”

We point out sorrowfully that his poor ruddy pilot is also in an Operational Squadron and, if he's any good at all, realises that his work has only just begun.

Does Winde realise this too? Evidently not. So we try to impress on him that every time he flies he must practise swinging his sight quickly on to other air-



craft and then keeping it there *continuously*. For those are the two things that are most difficult to do. He wasn't given his wing just to work the turret from side to side. It doesn't matter how far away the aircraft is, provided it gives a point to aim at and follow with the sight. If he can't see any other aircraft, he can try aiming at something on the ground.

And when he's not flying he can always make use of the turret training stand on the ground—yes, even though he's no longer at an O.T.U. Most stations also have a spotlight trainer. And if he can't get these, surely he can find a turret that can be dragged into the open. Then he can aim at aircraft in the air or follow the lines of the horizon.

"Provided," puts in Winde hopefully, "it's fine weather . . ."

We dash his hopes. If the weather is bad, Winde can stay in the hangar and follow the lines drawn on the walls. Follow them slowly, steadily and accurately. It is the slow and steady movements, not the large and rapid ones, that need patient practice to attain perfection. And Winde will certainly need a lot of patience. And practice.

So what it all comes down to is this. Before Sergeant Winde starts making any more cracks at his pilot's flying, let him satisfy himself that he is as competent in handling his machine as his pilot in managing his.



DO YOU KNOW . . . ?

THERE are (literally) a hundred and one things a Wireless Operator *must* know. There are, of course, a great many others that he *ought* to know. The question is: Does he ?

Well, he can soon find out, for here is an admirable little Quiz Book—"Do You Know . . . ?" (A.M. Pamphlet 148) which asks the 101 "Must" Questions. Its main object is to enable those at O.T.U.'s to check up on their knowledge, but it also serves as a grand refresher course for those who have passed on to Operational Units.

The answers are not given—nor must you write them in when testing yourself—in case the booklet should get into wrong hands, when it might be of value to the enemy. (Unless, of course, you've got all the answers wrong!) But incidentally, this is a much better way of learning than merely turning to an Answers Page, murmuring, "Oh, of *course!*" and promptly forgetting again.

The booklet has already been issued to O.T.U.'s, (O.) A.F.U.'s, etc., but as many air crews may not know of its existence, we are giving it a little notice here. It's of interest primarily to Navigators (W) and (BW) and to W.Op./A.G.'s; and also to anyone who likes clever drawings, for it's amusingly illustrated.

FLYING OFFICER FIXE HAS A PLEA

"**P**ITY the poor Navigator, Sir!" says Flying Officer Fixe to his pilot. "Why the hell should I?" retorts P.O. Prune. "You cut it pretty fat, don't you? Nothing to do but sit at ease at a table and draw lines and things, or occasionally fiddle with instruments, while I've got to drive the crate there and back. It's just a piece of cake for you. Why, it's like asking a chauffeur driving a complicated car to pity the poor passenger sitting comfortably in the back with a map and merely telling him to take the second on the left, or stop at the Spread Eagle! Why it's like . . ."

But enough of Prune's binding! As usual he don't know nuffin. F.O. Fixe has quite a lot to do and whether he's a good navigator or a poor navigator, he can always be a better one, if he gets help from the rest of the crew—particularly the pilot.

"Who? Me?" says Prune. "Me help navigate?"

Yes, Prune. Not by doing any of his work, but just by making things easier for him to do it. Like this!

F.O. Fixe has to take astro-sights—a tricky business very often. That is not the moment for Prune to practise up on evasive tactics and throw the bus all over the sky. Fixe wants a steady platform for one or two minutes. If he's taking a beam star sight, Prune should particularly cut down lateral movement to a minimum: if he's taking a star ahead, the lateral movement doesn't matter so much, but the airspeed must be kept constant. Straight and level flying at a constant heading and I.A.S are also essential when the astro-compass is being used



for compass swing in the air or deviation checks. If Fixe tells Prune when he's going to have a stab at either of these—then Prune will know what to do about it.

Fixe frequently tries to take loop bearings. For this Prune must also keep his aircraft straight and level on a constant heading. It doesn't matter particularly what the heading is, so long as Fixe knows just what it is at the moment when he takes his bearing.

F.O. Fixe has also to work on D.R. For this again accurate flying is going to make his job much easier. Both he and Prune must stay on inter-com., and to help the pilot help the navigator to his very best ability, the former should be told just before and just after the sights or bearings are taken.

On long-range flights, F.O. Fixe has to do a largish spot of calculating. Prune, on the other hand, will have to climb or lose height, at least at the start and

finish, if not more often! Well, he must do this at some constant rate. Otherwise changes in wind speed and direction and in computed airspeed will seriously affect the track made good. The result of this may be that instead of seeing the lights of home, you may all suddenly find yourselves in a balloon barrage, or over the hill, or in some other danger area due to a wrongly calculated E.T.A. So Prune must always let Fixe know as soon as he is going to make any change in his pre-arranged rate of climb or descent.

Always let Fixe know, too, any changes of course which may have to be made for operational or technical reasons. If, however, Prune has to do a lot of weaving to avoid flak, he can't keep track of the changes, let alone inform Fixe. But he should try to keep a fairly constant average course, so that at least Fixe will only have the time element to reckon with in his D.R. plot.

A final point for Prune and Fixe both to remember is that the inter-com. is never perfect; you may get distortion at any time. This is particularly dangerous when passing figures, such as courses to steer or I.A.S.'s. So on all such occasions write your messages down.

Talking, as we are, about P.O. Prune helping F.O. Fixe, reminds us that all the members of the crew can help each other in many ways. There's Sergeant Straddle, the Air Bomber, for instance. He must keep on the top line with his "patter," using it always correctly and with those inflections that experience has taught him to go over best with his pilot. And he and Prune will—if they have any sense—frequently practise varying types of attack. Thus they will learn subconsciously to react to the needs of the

moment; and all the time Straddle will be becoming better and quicker at working his bombsight settings.

F.O. Fixe mustn't forget that Sergeant Backtune, the W./Op., has a lonely dark job of listening. If Fixe takes the trouble to explain briefly why he wants the bearing, and puts in a little get-together work on the ground before take-off, Backtune will be much more interested, and as a result the wireless-equipment will undoubtedly be used much more successfully.

And what's the result of all this? It is that Prune and Fixe, Straddle, Backtune, and even that fellow Winde, who one day will become quite efficient if he continues to read and digest TEC EMM, will cease to become separate entities in an aircraft, but will become just one Air Crew, fully understanding each other, fully co-operating with each other—and about twice as dangerous to the Hun as before.



WHY NOT?

THIS issue starts TEE EMM's Volume III. You now have a complete Volume II : why not, as we said last month, get your Volume II bound up? We're afraid we can't arrange to supply covers: (a) because we can't circularise everybody to find out how many would be wanted, on which, of course, the price would depend; and (b) we have no arrangements for collecting payments if we did. (Not that the Air Ministry would ever trust us to handle cash—and how right they are too!)

But why not get a local binding firm to do it for you? It's not really an expensive

job. For a single volume, bound in board with the well-known TEE EMM blue cover on the outside, a reasonable charge would be not more than 5s. We know this for a fact because there's a printing and binding firm not far from this office which would do it; Prune slipped out to ask them. He slipped out at 11.29 a.m. He volunteered to do it, with great enthusiasm, and left us at 11.29 a.m. sharp—E.T.O. for this district being 11.30 a.m.

Well, it's not much to spend on having your TEE EMM's bound, is it? So why not do it? We can supply you with any missing copies if you write to us. We'll even give you the name of the firm too, without extra charge. Maybe we'll get a commission on sales—who knows?



ROYAL AIR FORCE BIRTHDAY

TWENTY-FIVE years have passed since the Royal Flying Corps and the Royal Naval Air Service were made one and the Royal Air Force came into being (April 1st, 1918). Since that time it has dwindled to almost nothing and risen again to the vast proportions it has achieved to-day. But whatever vicissitudes it has suffered in size its quality has always remained supreme. To celebrate its birthday a booklet of events has been prepared (Air Ministry Pamphlet 152). In this you will see, set out in order of dates, the outstanding events of the Royal Air Force's first quarter of a century. It's a great story and your head (and your heart) will swell when you read, and realise you can say "I'm in it."

Is Your Accident Really Necessary?



An hour in the air is worth two in a bush.



LEARN FROM THE OTHER FELLOW'S SUCCESSSES

The following extract is a very good example of the protection a fighter can give to a convoy by bluffing, even after its ammunition has been exhausted. The Kittyhawk, by the way, had already destroyed two S.79s and then . . . "I had returned to the convoy and informed them I had no more ammunition. I said I would stay if they wanted me to and the controller agreed as I might deter any other 79s. . . . I saw another S.79 and made a dummy attack. He jettisoned his torpedo whilst approximately ten miles S.W. of the convoy. I chased him and he flew N.W. at a high speed. . . . I made several dummy attacks on another S.79 who also jettisoned his torpedo."



And here's a very good example of the correct use of cloud cover: "My attacks were made taking advantage of cloud formation just above the enemy. I would spot the enemy from above, dive on his tail, shoot, and pull up into the clouds for protection from the greatly superior numbers always present. I repeated this procedure in all my attacks on fighters and succeeded in catching several completely un-awares. I never experienced any difficulty in getting rid of attacking enemy aircraft."

An extract from a report from an A.V.G. Pilot runs as follows:—

" . . . 30 miles from the coast I flew behind some cumulus clouds to protect my eyes from the sun and almost immediately sighted the approaching Japanese aircraft. They were at 15,000 ft. and flying due west straight at the harbour and I saw two formations of bombers each comprising 2 Vics of 7 in line astern escorted by a number of Navy "O's." A moment later I sighted another similar formation about one mile behind. The escorting fighters were not in definite formation but spread out all round the bombers, a number being about 20,000 ft. and well behind the first formation. I saw the sun glinting on their perspex above and behind me so I promptly brought the section together into tight Vic and climbed north behind some cloud. I climbed to 22,000 ft. and then turned west until I was over the rear formation. I saw several fighter enemy aircraft weaving behind the formation. We dived down and selected one machine each. . . ."

Here is good judgment and a quick and wise decision. The leader, instead of going bald-headed in to attack, wisely spent a short time manœuvring his section into the best position for it.

A THOUGHT ON TIME



"There are some times when I'm always punctual."

A certain Pilot Officer had a shock when he was told to attend a conference in the Wing Commander's Office at 0853 hours. There had been many conferences at nine, ten or eleven o'clock—but 0853! . . . What the hell goes on, he thought. He checked his watch overnight by the pips and again by the reveille over the Tannoy and again by the pips. He was definitely on edge.

However he and others were in the Wing Commander's Office slick at 0853 hours. They were told to light up and then. . . .

"Before I come to the subject-matter," the Wingo said, "I want to say a word about 0853 hours. Generally I've told you to be here at nine or ten, and the bulk of you have been late. The reason is that you have looked on the hours as approximations, although they're not. Nine o'clock is just as precise and fixed as 0853, but the fact that I fixed the time to-day to a minute seems to have made you time-conscious.

"It's human nature to think of round numbers as approximations. But from now on you must cut it out, and look on 0900 hours as being precisely 540 minutes after midnight. Wellington won at Waterloo because Blucher kept an appointment, and Ney, I think it was, didn't. Don't forget that.

"So whether you are going to be flying in the cover—or flying underneath it—keep the appointment punctually, no matter whether the rendezvous is at an odd number of minutes, or at just nine o'clock. Got that? . . . Good . . . Now for the work in hand. . . ."



But by evening we regret to state Prune had relapsed (see p. 15).





He was too experienced to use the Beam

THE EMM is an O.U.O. publication, which means it is for Official Use Only. And this means that those not entitled to see it are *not* to see it. It is primarily a Training Memorandum for air-crews, instructors and all those in the Air Force connected with these jobs. It is, in short, a Service Training Memorandum written *for* the Service and issued *by* the Service in the person of the Air Member for Training.

**My Goodness
MY
PILOTS' NOTES**



HOOPER R.A.F. with
apologies to Gurney.