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# TEE EMM



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*for official use only*

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



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

*Air Chief Marshal, Chief of the Air Staff*

## WHAT IS TRANSPORT COMMAND?

**T**RANSPORT Command, being one of the "new boys," so to speak, suffers from the fact that its work is perhaps not as well known as that of the other Commands. Here is just a little light reading for those who'd like to know how and why Transport Command started and what it does—in fact, just what it's in aid of.

In the early days of the war, all aircraft bought for Britain in the United States were shipped across the Atlantic, and it was not until 1940 that the idea of flying these aircraft direct to Britain was considered as a practical proposition.

The advantages of the scheme were obvious, and ATFERO, a civilian organisation, was formed in Montreal under the Ministry of Aircraft Production to control the flow of aircraft from Canadian and United States factories across the Atlantic to the United Kingdom. In November, 1940, the first seven Hudsons were flown across from Newfoundland and thereafter the stream of aircraft steadily increased. The United States was at that time strictly neutral, and aircraft built there were flown from the factory to the Canadian border and thence pushed across into Canada.

Then the United States entered the war, and new aircraft were flown direct from the factories to despatch points in Canada. Owing to the increase in the number of aircraft to be handled, a shortage of experienced civilian pilots arose, so the

President offered to loan U.S. Army pilots to fly the new aircraft to Canada. It was decided, however, that, as members of a Service Organisation, they must hand over the aircraft to another Service Organisation. Ferry Command, therefore, was formed with H.Q. at Dorval, near Montreal, to take over the functions of the civilian ATFFERO.

Meanwhile a new Group was formed in this country to co-ordinate activities of the Overseas Air Movement Control Unit, which was concerned with the ferrying of new aircraft to the Middle East from U.K. Transport Squadrons were formed within this new Group to fly vital supplies from the U.K. to the Mediterranean theatres of war. At one time during the siege of Malta the only supplies reaching the island were those brought by this Group's aircraft, whose cargoes enabled the island's fighter squadrons to keep flying.

In March, 1943, Transport Command was formed to control the rapidly expanding operations of transport aircraft in all theatres of war, to take over the functions of Ferry Command and the U.K. Group and to provide air transport facilities for all the fighting services. Since that date the Command's activities have increased enormously and trunk lines have been extended throughout the Middle East and to India. B.O.A.C., the organisation created by the Government as the overseas instrument of British Civil Aviation, exists side by side with Transport Command and works in close collaboration with it.

At Cairo there is a Group which controls the flow of aircraft from the Middle East to India, and its squadrons played an important part in the invasion of Sicily and Italy, both in the transport of supplies and technical personnel right up to the front line, and in the evacuation of casualties. When it is realised that the initial equipment for a fighter squadron weighs between 300 and 400 tons with a follow-up of 100 tons a month it's obvious that the job is no sinecure.

Transport Command crews cover not only the war zones, but also more peaceful areas and, for this purpose, a good deal of special knowledge in such subjects as engineering, international law and cargo-handling is required. For this reason the Command has formed its own O.T.U's. and F.T.U's., both in the United Kingdom and in Canada.

The present-day activities of the Command are two-fold. Firstly, it operates regular services for the carriage of passengers and priority freight to Africa, the Middle East, America and India on what are known, colloquially, as the "tramlines." Secondly, it deals with ferry and reinforcement aircraft. The distinction between the two, shortly, is this:

A ferry aircraft is one flown out to a theatre of war by a ferry crew, who straight-away return to their base, whereas a "refers" aircraft is one flown by a crew who will later use the same aircraft on operations. Transport Command caters for the training of both types of crew and for the preparation of aircraft for use overseas.

Besides these regular duties, the Command must always be ready to provide transport facilities for all operations undertaken by the Allied forces. It will, no doubt, have a busy time this year!



**H**ERE is the second of our short series of articles designed to help those who are going for the first time to India, Burma and other South-east Asian theatres of war.

## II. AIRCRAFT AND AIRFIELDS

It has always been Prune's custom, whenever he does anything wrong, to start by blaming his aircraft. Sometimes it comes off, but in general he is seen through.

But when Prune gets to India or Burma he'll find for once that he may have some slight justification. For all the types of aircraft you'll fly out there will have been originally designed for more temperate climates, which means that in hot ones they won't operate at maximum efficiency. Almost certainly, therefore, you'll be disappointed with your aircraft's performance; firstly, because the engines don't deliver the power that they would in cooler air, and secondly, because you don't get as much "lift" from the atmosphere as you do in England. Moreover, the additional radiators, oil coolers and other tropical gadgets also detract from performance. All this at first may seem a little depressing, but it's just one of those things which have to be accepted.

The lack of lift, coupled with the lower

output of power means, of course, that take-off runs have to be considerably longer, but this is not a very serious problem; you can cope with it easily. "That sinking feeling" in the glide, however, is a little more serious and must be watched. It is a fruitful source of accidents to newcomers. You should also remember that take-off and landing conditions vary considerably within the twenty-four hours. Runs will be shorter and flatter for the same power at dusk, and particularly at dawn, than at midday. This is because the intense heat radiating from the ground at midday makes the air thinner for some hundreds of feet above, while conversely at night there is rapid cooling.

The question of loss of power can to a large extent be dealt with by extra careful maintenance and engine tuning. Careful maintenance, too, is all the more important out East, for the aircraft are usually flying from dusty airfields and in high temperatures, which mean that the engines deteriorate far more rapidly than in the U.K. For this reason oil consumption is high, and should be carefully watched as a pointer to the engine's general state of health.

If after your arrival you find you have to fly a type of aircraft about whose hot-weather performance you have little or

no definite data don't go at it bald-headed. Take it crooked, as ski-ers say. Make careful experiments with light take-off loads and see what happens—or doesn't happen. Only when you have a pretty good idea what the form is should you try full take-off load. And when you do experiment, report results to your Group H.Q. It'll be useful to them and also to other squadrons arriving in the future.



*Report the results of your experiments to  
Group H.Q.*

All aircraft at operational Stations stand out in the open, just as in the United Kingdom. This is pretty tough on the aircraft. During the day you may easily get temperatures of 110° or more in the shade—and the catch is that there isn't any shade, or at least very rarely. The metal parts of the aircraft get so hot that to touch them is about as comfortable as fondling a stove in full

blast. If you had a piece of bacon you could fry sausages and bacon on a Spitfire, if you had any sausages.

The effect of this heat on cockpit instruments, perspex, and so on, can be imagined. All cockpits therefore should be covered whenever possible, and considerable care should be taken of the gun-sights; their complicated lenses are particularly liable to damage from heat. They should, in fact, always be covered, even in flight—unless you're actually expecting Jap aircraft to bob up.

On the other hand, when the sun isn't shining it's almost certainly pouring with rain. And not the sort of rain you're accustomed to in England; a rain that penetrates into every cranny as easily and persistently as moth into your laid-by civvy suit. This makes fabric or plywood, or glued joints, deteriorate extraordinarily quickly. Pay special attention, therefore, to such parts on inspection, and if you spot deterioration, get in touch at once with the Engineer Officer.

Coming now to airfields, it's no exaggeration to say that the airfields you'll find out East—in India at any rate—are some of the finest in the world. A large programme was put in hand the moment the Japs came into the war, and the Sappers and the Public Works Department (the "Wonders and Blunders" of India) have really spread themselves. You'll find that the all-weather airfields nearly all have metal runways, one of which will be 2,000 yards long or more.

The construction programme, however, isn't yet finished, and what seem to be completed airfields may not yet be occupied by the R.A.F. This means no refuelling facilities. On others there

may be only hand-pumps available, while on yet others there may be full all-night bomber service. It is, therefore, most important always to find out full details about the airfields on your route, *i.e.*, whether they are yet available to you and if they can offer full facilities and all "mod. con."

A final word! Heat, rain, the difference in climate, dust, and all the other things we've mentioned are not your only worry. There is one more—a minor one, but it can make itself felt.

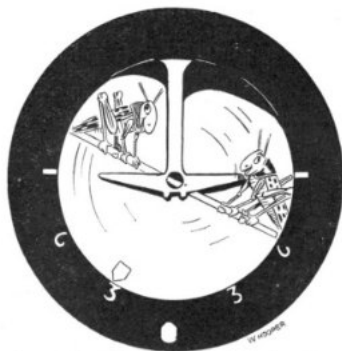
That is the insect life.

The local insect population takes a great deal of interest in aircraft. Many of them seem to look on cockpit instruments as a home from home, and aircraft have crashed or force-landed before now because of coleoptera trouble. One species of wasp, for instance, actually seems to include Pitot heads in its normal life cycle. Look out for them all!

For the same reason—enemy insect activity—it is very advisable to shake out your flying clothing and helmet before

putting them on. Things like scorpions have a great fancy for curling up inside for a quiet zizz and hate being disturbed. Having a flea in the ear is nothing compared to having a scorpion in it. Try it and see!

(Next month: "Jungle Flying")



*Insects find cockpit instruments a home from home.*

## THIS MONTH'S PRUNERY

**THE MOST HIGHLY DEROGATORY ORDER OF THE IRREMOVABLE FINGER** (Patron: Pilot Officer Prune) has this month been awarded to Squadron Leader — for Choosing Quite the Wrong Time to Boob on his Navigation.

An A.O.C., the Station Commander, and several other high officers had been for some while anxiously awaiting the arrival of a Very Important Member of the Government to inspect an R.A.F. Establishment nearby. The aircraft was considerably overdue when a message was received from a Station six miles away to say the pilot had landed there in error, that the Very Important Personage had been officially welcomed by a mere Squadron Leader, that he had now gone off to inspect in a truck, and could his car be sent on as soon as possible, please.



## WHAT THE JAP IS DOING

*JAP high-level bombing.* This is usually carried out by nine aircraft—multiples of nine flying in "Vee" formation. Here are some of the more common formations used against both ships and land targets:—

(a) Six separate flat "Vees," occasionally with one or two vacancies and often with one plane at the rear of the apex of the "Vee."

(b) A "Vee" of three nine-plane "Vees," with the leading "Vee" 50 or 100 feet above the others, changing to a slightly staggered formation of one "Vee," when seven or ten miles from the bomb release point.

(c) Three flights of nine bombers, successively stepped up 250 feet from port to starboard and in line with Zeros weaving about the port side of the formation, the starboard side being given a greater field of fire with no need for fighter protection.

(d) Two nine-plane "Vees" of "Vees," with the leading echelon highest and left echelon next highest.

Attacks are characterised by a long straight approach in close formation held persistently, regardless of anti-aircraft fire and fighter opposition. Bombs are usually dropped on a signal from the leader, at altitudes ranging from 7,000 to 26,000 feet, depending upon the nature of the target and the opposition.

Evasive tactics against anti-aircraft fire are taken by maintaining altitude above the effective range of anti-aircraft fire, if possible, by occasional changes in altitude, and by weaving in formation. As, however, these tactics have proved costly, it's quite possible that the Jap will change them. (Maybe he has already.) Possible changes are as under:—

(i) An increase in "suicide dives." It is standard Japanese doctrine for any pilot who is in a plane damaged to such an extent that a destructive crash is assured, to take a quick look about and after a final "Banzai" send his damaged plane into the nearest American ship. Suicide dives will still occur with any race of people



with such a doctrine. It is therefore unwise to assume that a plane whose bombs or torpedoes are away is no longer dangerous.

(ii) Better co-ordinated attacks. The Japanese have been improving their attack co-ordination steadily. High level, dive, glide bombing and torpedo attacks have been simultaneously delivered. When one starts, watch out for the others and watch out for better timing as the war progresses.

(iii) More night attacks. Several times the Japanese have attempted night air attacks on surface vessels. We know that they are trying more of them. Watch for the first night air attack without flare illumination and you will find them equipped for blind bombing and torpedo work.

(iv) Taking advantage of weak arcs of fire. The Japanese are quick to take advantage of a weak arc. In one case a near miss under the starboard quarter of a ship stunned the gun crews. This near miss was followed quickly by a hit in and from the same quadrant. The hit having put any guns out of action and opened a hole for attack, quick advantage was taken and two more hits followed. Redistribution of gun power and arcs of responsibility is indicated whenever, through damage, the gun power in one arc is weakened.

When Jap bomber formations are attacked by fighters they usually turn into the attack, and the forward aircraft drop down to uncover their guns. Generally, the formation is well maintained until bombs are dropped, when it may be loosened up somewhat and then the flights frequently engage in a series of surges up and down, losing and gaining about 500 feet in altitude.

Bomber operations against new or important targets are characterised by repeated attacks and "follow-up" missions with great regularity. Many of these attacks appear to be made along the same route and at the same time each day, although not necessarily by the same type of formation.

*Jap Glide Bombing.* While occasional reports of dive-bombing attacks at angles of 70 to 80 degrees have been received, the majority of low-level precision attacks have been made by a powered glide at an angle of 45 to 50 degrees. The bombers begin the dive at a height of 3,000 to 5,000 feet and follow each other down until near the target before releasing their bombs. After releasing their bombs the planes employ their machine-guns against ground installations. Retirements are effected at high speed with evasive action usually limited to short climbs and dips to assure the fastest possible getaway. Attacks are well co-ordinated and are usually made out of the sun.

*Jap Torpedo Bombing.* Approaches are usually made in close formation at medium altitude. Attacks may be made in a wedge, or loose diamond formation, or in small groups which separate to attack individual objectives from different directions. Glides are made at an angle of 40 to 45 degrees and torpedoes are dropped from an altitude of 200 to 300 feet at a range from 500 to 1,200 yards from the target. Approaches are planned from the direction where the least concentration of anti-aircraft fire may be expected. Full advantage is taken of the position of the sun and of cloud formations.



## PARACHUTING IS NOT - REPEAT-NOT DANGEROUS.



I  
THE article we published last month (February) on "Baling Out" caused such widespread interest and comment that this month we are publishing a . . . Well, frankly that isn't true; it hasn't so far caused any widespread interest or comment at all, because—we'll come clean for once with our readers—we're writing this piece well before the actual distribution of what is still at this moment *next* month's (February) TEE EMM, but will be *last* month's by the time you get this, in March.

And we're writing it early, ostensibly because we want plenty of time to get it properly vetted by the Lordly Ones at the Parachute Training School, but actually because we're aiming at a spot of leave ourselves round about the time we should be writing it. . . . And anyway the whole thing's just an excuse for another article about baling out.

So don't say we're never honest. Why, we haven't been so truthful since a stern parent caught us playing George Washington in the orchard. Like young George we could not tell a lie. As a matter of fact, we tried hard to tell one,

but it wasn't nearly good enough. We were also hampered by actually having the axe in one hand.

Moistening lips and starting afresh, the idea of this article is that parachuting is not, repeat not, dangerous. That is, of course, assuming you know how to do it—a rule which applies to a lot of things. Even shooting a catapult can be dangerous if you pull the elastic *away* from you. . . .

To give you a proof of how safe parachuting is, since the beginning of the war about 7,000 letters have been received by the Irvin Airchute Company from British fliers alone, all applying for membership of the Caterpillar Club—and the little gold badge which signifies a safe descent and an aviator once more in the market for future sorties or combats.

At first thought, of course, the general idea of hurling oneself out of an aircraft some thousands of feet up sounds rather alarming, particularly if you haven't done it before, but then so are a lot of things. Even getting married. Many a nervous bridegroom, standing on one foot in the front pew and sweetly

fingering a collar four sizes too small, has comforted himself by reflecting that other people have taken the same plunge and are still alive and not much different from their bachelor days—except for a tendency to stay home at nights instead of beating it up with the lads. So too should the intending parachutist comfort himself.

Let him reflect, for instance, on the thousands of infantrymen who, not once but dozens of times, sling themselves trustingly into the air during the course of their training. Consider the actual paratroop's jump in contrast to that which you, as a member of the R.A.F., will possibly have to make. First of all, he jumps from a mere five-hundred feet; it is very unlikely you will have to do that. He is quite probably jumping in the dark and almost certainly in a strange country, yet he has only a bare twenty to twenty-five seconds of descent in which to work out any problems. And he is quite liable to be shot at on the way down, for he is *attacking* by parachute, whereas you are *escaping*. It is very obvious that *he* realises to the full the value of knowing his parachute drill.

Let's now go into the question of what the exact form is. Basically the job of a pilot or an aircrew member is to fly with his aircraft to an objective and make his attack or whatnot. Then his job is to fly back with his aircraft, so that he can do it again. Without his aircraft he can't get back; without him the aircraft can't get back. Now weather conditions, mechanical failure, or enemy action may so damage the aircraft that it *can't* be got back safely. The aircrew member must therefore try and get *himself* back safely

—for there's another aircraft waiting for him—by baling out. If he bales out over Great Britain it's of course easier than baling out over the Channel, or occupied territory, or over Germany—but people do come back from all these places. It's his duty to save his life—apart from the fact that we all of us instinctively want to do that—in order that he might fly and fight again. And the *only* answer is the parachute.

So far, so good. Our hero has to bale out. How does he set about it?



*Calm, confident and determined.*

First and foremost, he must remain calm, confident and determined. This is really nothing to get all het up about. It is simply the occasion which he has long anticipated and for which he is—we hope—fully prepared. Our hero

must realise there is nothing heroic about the business; he's just going to jump out of his aircraft and his parachute is going to carry him safely down to earth.

Has he got all that? He has? Good!

Now, we'll assume that his harness is correctly fitted and his equipment all in order. If he hasn't seen to that before, it's too late to do it now. Surely he wouldn't have neglected that simple precaution? Or would he? Prune alone knows! But there is, at his Station, a Parachute Section who will have put him wise to everything—if he's asked them!

If he's in a bomber the captain will probably have given him the order to abandon and he will have been told the altitude and probably his position as well. His escape exit should be as familiar to him as the door of the Mess—far more familiar, if he's wise; for

behind the one lies only food, drink and the wireless, behind the other lies safety.

If he is flying high he will have taken a deep breath of oxygen before removing his helmet, intercom, and all other entanglements.

Then at the hatch he steadies himself for a brief moment, makes himself as compact as possible with legs and knees pressed together, arms across the chest, and hand on rip-cord.

A "Cheerio" to the rest of the crew—and out he goes. He is falling, falling through the air . . .

*(Will our hero reach ground safely? Will he do all the things he has been told?)*

*Will he remember to pull his rip-cord?*

*Order your April TEE EMM now and find out. Another thrilling instalment next month!*

## DO NOT DRINK THE SEA

**I**N our last issue (February, 1944) we reproduced from a bulletin called "Survival Experiences", issued by Solomons Air Command, a story called "The Pilot and The Albatross."

In this record of a pilot's experiences after being ditched it was stated that "for periods of two and three days he drank sea-water, first greasing his throat with some of the fat" (of an albatross which he had shot). He says he suffered no ill-effects."

In case P.O. Prune, when shot down in the sea, goes and drinks sea-water as if it were beer, thinking it is O.K., we'd like to point out that according to the medical authorities this is all wrong, and that normally drinking sea-water produces death.

Here is the paragraph in the Medical Research Council's War Memorandum No. 8 on the subject:

"The experiences of survivors suggest that it may be helpful to moisten the lips and rinse out the mouth with sea-water, and also to use small quantities for soaking biscuits. There is, however, no doubt that large draughts of sea water cause death, and even small amounts may prejudice a man's chances of survival on a long voyage. Permission to drink sea-water, therefore, should never be given."

So don't go having 'the other half' and then 'one for the road' of sea-water, and saying, "Oh, but TEE EMM said so."



## SATAN'S HOUR

### III. HEAP BIG MEDICINE

**C**ONTINUING our series of suggestions for employing aircrews suitably during those Satan's hours of non-flying weather, when even the best of types get browned off and Satan is busy finding mischief still for idle hands, here is yet another idea.

The author of it suggests that wet afternoons offer a big problem. Films and lectures are good but can be overdone, while constant "stand-downs" lose their charm. At last it comes to the point when the only right answer is exercise; yet outside it is pouring with rain, and the Station has not got a gymnasium or other play room. Now is the time when the wise C.O. will call on his men to assemble and will have provided sundry fat, sizeable balls—the medicine ball.

The medicine ball is made of rubber or leather. (The writer says he has had good home-made ones of canvas.) For rough work, such as now, in a hangar, or for outside, the rubber ones are the best, since they stand up to more violence

than leather. They should measure a foot to a foot and a half in diameter, and their weight goes something as follows: For novices 6 lbs. to 8 lbs., for stout fellows 9 lbs. to 12 lbs., for heroes 14 lbs. upwards. Between 9 lbs. and 12 lbs. is the best.

Now, the games to be played with the medicine ball are various. They need not last long. "Medicine ball" is a very condensed sort of exercise, akin to wrestling or boxing. It must be played fast, and at first it must be played with care; or strains, sprains and bruises result. But it has a peculiar charm and east or west, on board ship, in India, or in West End gymnasiums, there are few who, once initiated, do not become ardent exponents.

Here are the games, in order of simplicity:

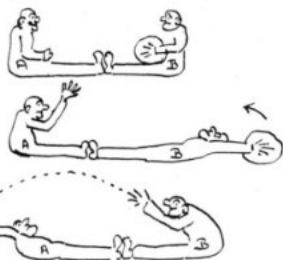
*For more than four.* Form a circle and pass the ball quickly, man to man, fast as you can in one direction, then in the other. Now throw it in any order across from one to the other, the faster

the better. To finish, let everyone have three "lives," one of which they lose if the ball drops on the ground. At the end, with two only left in, there'll be some mighty hard throwing. By the way, don't humorously throw the ball to anyone with his back turned. It isn't humorous.

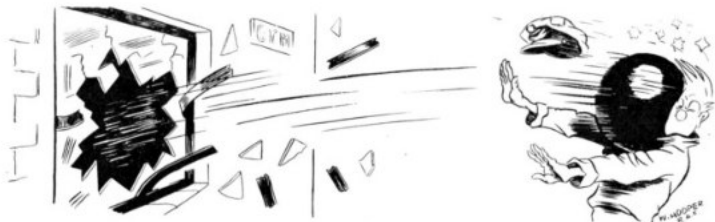
*For four.* The best of all games and one requiring rare skill, foot work, strength and low cunning is this: Stretch a rope chin-high and take partners. Chalk out courts and play with the medicine ball exactly as in deck-tennis—serving in the same fashion, and scoring up to 11 or 21 points, according to stamina. No throws are barred, except reaching over the rope. Putting back or side spin on the ball or trying to kill your opponents by direct hits are legitimate and to be encouraged. Three sets of this will wreck the strongest.

*For two.* Singles as above can be played. Or there are other games to play where the floor is clean enough to lie down. One such is this:

The two players sit down facing each



other with legs outstretched and soles of feet touching, as in the above pictures, which are the writer's own and are self-explanatory besides being dashed good art. When B has thrown it to A, A carries it back to the prone position (only too easy, this) and then throws it back to B. The essence of the exercise is to throw the medicine ball as you come up, *not* after the sitting position has been attained. If you drop or miss the ball, or are knocked backwards by it, your opponent gains a point. Three points make a game. Three games score a pint of beer. You'll need it. These ball games are "Heap Big Medicine."



*Medicine ball is not, repeat not, dangerous.*

# *Is Your Accident Really Necessary?*



“Ships that pass in the night and prang each other in passing.”

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## DARKY REGRETS



*Hullo  
Ducky*

It is not often that an advertiser apologises for an overstatement. We have, however, been asked by the advertisers of Ducky (see page 250 of our Christmas issue) to tell all concerned that the word “Pundits” was inserted in error. As Ducky and Pundits don’t mix, the advertisers have asked us to express their regrets and to state that in all other respects their claims for the use of Ducky are fully justified by experience. The thousands of unsolicited testimonials received may be seen—if they can be found—on application at the registered offices.



### THE NAVAL SCHOOL OF AIR COMBAT

**T**HIS high-sounding title conceals the identity of a number of so-called experts who have seen the light and think it would be a good idea if some of you had a squint through their G.M.2 sights. The "light" referred to is the R.A.F. Central Gunnery School—a piece about which establishment appeared in TEE EMM for July, 1942—and in point of fact instructors at the N.S. of A.C., have been trained at the C.G.S. and have now, with some modifications and additions, set up its naval equivalent.

At present the School's intention is to train Naval fighter pilots as Pilot Gunnery Instructors, and T.B.R. observers as Fighting Controllers. T.B.R. pilots will also be given instruction in evasive action, co-operation with their fighting controllers and front-gun firing (against the time when they have to use the gats with which modern T.B.R. aircraft are fitted).

Later, when expansion and a permanent home have been achieved, Wing Leading will be introduced into the

syllabus, and the School will become a sort of combination of the R.A.F. Central Gunnery and Fighter Leader Schools.

Here are some details of the P.G.I. course. (Particulars of the T.B.R. syllabus will be published at a later date.) In brief, the course lasts a month to five weeks, depending on the weather, and each pilot should average fifty hours flying, of which approximately thirty-five hours will be cine-camera exercises and fifteen hours air firing.

The object of the course is to teach experienced fighter pilots, not only to become expert marksmen in the air, but also to be able to instruct others in all normal sighting and fixed gunnery problems, both practical and theoretical. After passing through the School they will then be competent to help their Squadron Commanders in the air combat training of the unit, or to take their place with confidence as instructors at one of the Naval Fighter Schools.

That, being interpreted, means, if you're a fighter pilot, that you should be

able to fly a Seafire considerably better than you've ever flown it before, obtain a two figure average on your sleeve-shoots (without the normal assistance of the W.R.N.S. marker and an indelible pencil), be able to work a G.R.U. Assessor backwards, and discourse learnedly on the problems of fixed gun sighting. (We advise you to look out your slide-rule, log tables, etc., before you join, and discover if a radian equals  $57.3^\circ$  or  $53.7^\circ$ , because we never can remember. In fact, you might let us know definitely one way or the other!)

Joking apart, the School does have the goods for fighter-boys in regard to front gun work, and we take the liberty of quoting a couple of unsolicited testimonials from satisfied clients:

"The course is undoubtedly of utmost value to the fighter pilot, improving his natural flying as well as his air firing."

"I have no hesitation in asserting that I have learnt more of the theory and practice of fixed-gun firing than I was ever aware existed before the last four weeks."

Send your applications to the Admiralty through your Administrative Authority by letter or signal. First course for 1944 commenced on Thursday, January 27th, and will last four or five weeks, with a two-week break (to tie the aeroplanes together again) before the next course. As pilots will always join on a Wednesday you should be able to work out the approximate dates of the eight courses to be run this year and

apply accordingly (it's more than we can).\* There are four vacancies per course, just for the time being.

Before long a further refinement may be added to the course, a series of lectures for the budding Squadron Commander on how to overcome the many difficulties and trials which will beset him and to meet which with the requisite knowledge so many of us are so ill-equipped.

Lastly—to show that we have also got some gen for the T.B.R. boys—listen to a few more unsolicited testimonials. This time they are from some American Naval Liberator squadrons with whom we have done affiliation.

"The fighter affiliation provided is deeply appreciated. Much valuable experience was given . . . both in the air, while training in fighter evasive tactics, and on the ground when given lectures by pilots of the squadron."

And here is what a Liberator pilot said on return from a sortie in the Bay of Biscay, after repeated attacks had been made on his aircraft by eight Ju. 88s:—

"It was just too easy. I simply did what I had learnt in my affiliation exercise the day before, and that's why I am here."

The T.B.R. courses run concurrently with the fighter courses, so think it over. Maybe we can help, maybe not, but we

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\* TEE EMM's office boy (who's got education) makes the next course March 8th, and the following one—the next available one to apply for—April 19th. By gosh, he's right!

shall welcome constructive criticism *after* you have been with us.

One last point: P.G.I.'s., when you go fully-fledged from the School, spread the gospel and don't just think—as Prune's cousin, S/Lt. Swingit does—"Ha! I'm an expert, but I shan't teach anyone else, in case they get better air-firing results than me." (Not that they can probably *help* getting better results than Swingit, course or no course!) We want everyone to know how to succeed with their deflection shooting—so that "My dear fellow, just get dead astern and close as hell" will not be the only axiom of the fighter pilot in combat.

To help the P.G.I. every possible step is being taken to provide all ships, stations and squadrons with the necessary G.R.U. assessors, projectors and incidental equipment connected with his profession.

Once qualified, you will go to your new appointment "for P.G.I. duties" and we'll be watching you.

Incidentally, we can't teach you *every-*

*thing* in a month, but the idea is that when sufficient P.G.I.'s., with a sound basic knowledge, have been trained, then we shall introduce an advanced course for super-P.G.I.'s., including considerably more fighter tactics.



S/Lt. Swingit is, of course, an expert.

## FLEET FIGHTERS

**W**HILE you are, of course, trained as Naval Fighter Pilots to the fullest degree possible before going to sea, there are some things you can only learn in the hard school of practical carrier experience and combats with the Hun. ("All right, all right, one can't learn *everything*

at once," as S/Lt. Swingit said when he was picked luckily out of the drink for the third time in two weeks.)

Life is, of course, much easier when disembarked. R/T silence is no longer the rule, your flying is less restricted, your airfield is stationary and what's

more can't be torpedoed, and above all (as Swingit feelingly points out) there's no barrier on the runways.

But when on a carrier—well, that's different. Here are some of the snags to avoid and points to watch, when operating over the wild wet waves.

Carrier-borne fighter squadrons have one thing in common with their R.A.F. brethren operating from advanced landing grounds and front line airfields, and that is: spare aircraft and engines are not ready to hand. This means that every taxiing or deck-landing prang will correspondingly weaken the force and put a greater strain on the remainder. Unfortunately, however, it's not always easy at sea to keep yourself in that constant flying practice which helps so much to reduce the casual crash. For while you will probably have done anything from 100 to 150 fairly recent Dummy Deck Landings on the ground before you do your first landings on the Training Carrier, by the time you get mixed well into your first combat at sea you may easily have had a month or more without any flying at all.

Naturally you're not passed out on Deck Landing training unless you're considered A.1, but it's obvious that to stay at that standard you must keep your hand in. So use every available flying hour when you *are* disembarked in practising. Try to make every landing on an airfield an "A.D.D.L."

Again, you'll find that at sea you'll be flying many completely uneventful fighter patrols. Here then is an opportunity—so long as you remember the patrol is the main job—to get in a little valuable cine-gun practice. Section

leaders can plan this beforehand and then pick a suitable moment to have some cine-gun attacks. But don't forget to have your films analysed by the ship's photographic section or your Squadron Air Combat Inspector as soon as possible afterwards. (Close-ups of the flagship by the way are *not* encouraged.)

Remember that your Beacon is one of your most valuable life-lines. If you are not in R/T touch there's nothing in the world so beautiful as the note of the Beacon in your ears—always provided you are competent to use it. Practise homing with the Beacon at every possible opportunity, on every flight, on every fighter patrol. It should never fail to bring you home to roost. And one day it may be the only thing that will!

Your Fighter School training can't possibly cover all the problems of Fighter Direction—nor is it supposed to. Get to know your F.D.O.'s and, if space permits, spend as much time as you can in the Fighter Direction Office so as to get a good idea of their side of the picture.

But Fighter Direction isn't infallible, so never relax your vigilance. The unexpected so often happens at sea. It's not unusual to find yourself, with murder in your heart, in hot pursuit of what is really a friendly aircraft, while the enemy is actually approaching from another direction. Nevertheless, the F.D.O. is the vital link in fighter organisation; on him depends to a very great extent your success and your safety.

Never forget the vital importance of backing-up during landing-on. If eight aircraft waste only fifteen seconds each, it will take fifteen *minutes* longer for an

escort carrier to re-join a ten-knot convoy going downwind. Thus, every second wasted during landing-on means more danger to both the carrier and the convoy. By concentration and quick thinking you ought to be able to keep your squadron average within the thirty-second interval between landings on.

If you've been flying high or fast, or even have just had a successful combat and are brimming over with *joie de vivre* or *feu de joie*, or what-have-you, you'll find there's a definite tendency to make your landing-on approach too fast. Watch this, if you don't want to find yourself and the barrier in an unexpected close clinch.

And don't heave a sigh of relief and relax everything the moment you are on the deck: there's probably another chap backing up. Indeed, your flight isn't finished till you're safely parked behind the barrier with your engine stopped. Nor should you dally around the cockpit any longer than necessary once you are parked.

On the broad assumption that it's

important to have your gun button at "SAFE" when on an airfield, it's doubly important to do so when coming in to, and/or taxiing on, a close-packed deck. The handling party is already short-handed enough without having their numbers further reduced by a burst of cannon fire, however friendly.

To sum up, we can say that a Fleet fighter pilot's job in a carrier means many weary hours of waiting before he gets a chance of a crack at the enemy. So make sure those hours are not wasted. Remember you are a fighter pilot and men will judge you by the Huns you destroy in the air. But unless your squadron has a perfect ground organisation you won't get off the deck, and unless every pilot pulls his finger out it won't be perfect. Take care, therefore, not to put up any blacks in this vital though very elementary matter.

Then whenever the great moment of combat arrives—as arrive it will—you'll be ready mentally and physically, and can sail in with confidence.

And GET IN CLOSE!



*Have your gun button at "safe"—the handling party is already short-handed enough.*

## BUMPH THAT SAVES LIVES



"THIS blasted kite's got something wrong with the port outer," announced Prune as he got out of an aircraft which by the exercise of unaccustomed skill he had actually brought to rest all in one piece. "I mean this *blessed* kite's got something wrong with the port outer," he hastily corrected, finding he was addressing Waff Winsum of the ground crew. "But it's nothing much."

Having thus delivered his helpful message to the servicing party he set off at a rate of knots for the mess and beer. He had, he felt, done *his* duty in reporting something wrong with the port outer to the ground crew: it was *their* job to put it right.

Well, being Prune, he never stopped to think that not only should he have filled

in on Form 700 the details of his accusation of unserviceability, but that he, as the pilot flying the aircraft, was the best, if not the only, person qualified to state exactly what *was* wrong, and so ensure its being put right properly and quickly by the servicing people. What Prune felt, no doubt, was that there wasn't much wrong anyway, and all this scribbling on forms was just so much added bumph holding up the war. Surely things can be put right without all that fuss?

Well, we hope Prune is listening to what we're going to say.

It's not a question of feeling everything's O.K. so long as you've told someone in the ground crew that something's wrong. It's not a question of avoiding bumph and reducing the amount of scribbling on forms and so "getting on with the war." It's not even a question of merely filling up the form, just to have a defect put right more expeditiously. It is very often a question—it sounds like overstressing the point, but it's true—of life and death. For omitting to fill up that Form 700 may cost lives. Filling it up properly may save them. That bit of bumph saves lives.

If you don't believe us, look up TEE EMM for July, 1943, and read the article called "Accidents That Need Not Happen." If you still don't believe us, go on reading this.

Servicing people throughout the R.A.F. are constantly having unnecessary trouble in repairing unserviceable aircraft. And the chief cause of this trouble is that minor snags—sometimes even major snags—are not reported fully. As a result—and quite apart from doubling

work—the ground crews are not certain what they are looking for to put right, or, when they've found some fault and rectified it, that they've rectified the correct thing. And even if they've got it right on the ground they don't know that it'll be all right in the air—again, because they haven't been told exactly what the trouble was. Consequently the next crew to fly the aircraft may get it in the neck.

And they sometimes do. Listen to this! A Wellington pilot had trouble with his port engine and eventually did a single-engine landing, subsequently being unable to taxi clear of the runway. Did he report this properly? No, he told the Squadron Duty Officer, but never put the aircraft down as unserviceable on Form 700. Instead he went to bed.

A test flight on the aircraft, which he was to have carried out next day, was abandoned because the port engine would not run properly even on the ground. And that evening this pilot, who had obviously valuable information which would probably have enabled the fault to be put right without difficulty, left the Station.

The Engineer Officer was also considered to blame in that he did not track the pilot down and get the necessary information. He should not have let him rest till he had got it; but primarily it was the pilot's responsibility to provide it in the proper manner.

And what was the result of all this? There was a test flight the following day with a pilot who had not the experience of the original one, nor the specific knowledge of what exactly had been wrong. With him went another R.A.F. sergeant and a civilian servicing engineer for the firm manufacturing the engines. The port engine suddenly failed again at a

couple of hundred feet, the aircraft crashed, burst into flames, and all three were killed.

Had Form 700 been fully and competently filled up in the first place there is every reason to suppose these three men would have been alive to-day.

Read further! This time it's a Halifax crash, and again three lives were lost, while three other men were injured.

The aircraft had been flown the previous day and had to land on account of dropping oil pressure on the port outer engine. It was ground-tested but no defect could be found.

The aircraft was flown again on the following morning. The same trouble occurred, and the aircraft had to return within half an hour and land. The pilot (in his own words) "reported the trouble to one of the ground crew and entered in the authorisation book that the duty was not carried out because the *aircraft was u/s.*"

That afternoon the aircraft was flown again—for the last time. Once more the trouble developed. The aircraft crashed. Three men were killed.

Listen now to the Investigating Officer on this crash! He said that if the further loss of oil pressure had been reported to the Engineer Officer, action might have been taken "*which would have prevented the accident.*" This accident suggests the possibility that there is not the close contact between the Engineer Officer and the rest of the staff, air crew and ground crew that is desirable." He also added that a further contributory cause of the accident was the failure of the pilot who flew the aircraft that morning to "report in the authorisation book *why* the aircraft was u/s."

And, later on still, the report has this sentence :

"The average member of air crew has insufficient experience and imagination to enable him to realise how his neck or his friend's neck may be involved, and therefore units should be run so that flying personnel are encouraged to try to take an intelligent interest in the maintenance of their aircraft."

And in yet a third recent accident—to a Hampden this time—one of the recommendations of the Investigating Officer was this :

"Pilots should be impressed with the

importance of reporting all defects on the Form 700 ; by omitting to do this they endanger the lives of other aircrews." The above sentence is not "just one of those TEE EMM phrases." It is the considered opinion of a Court of Investigation into an accident to an aircraft in which, like the two previous accidents, three men were killed.

And these are only three of many similar cases on record, yet in these three alone nine men were killed. Their deaths were, if not perhaps directly, certainly indirectly due to pilots treating Form 700 as just a piece of added bumph.

## ANSWER TO LAST MONTH'S CROSSWORD

(Vol. III., No. 11, page 259.)



*It wasn't so difficult, says Sergeant Straddle.*



*Or, was it?*

## THE BOMBING LEADER—

## WHO IS HE, ANYWAY?

**B**ECAUSE the word "fighter" seems to imply "attacker," there is among the general public a sort of impression that the fighter aircraft's rôle is solely offensive, and not defensive at all. This, of course, is a complete misapprehension. True, fighters *can* act offensively, but in the main they are a defensive weapon. The Battle of Britain, won by our fighters, was a defensive battle fought against the Hun offensive weapon—his bombers; which were in turn defended—more or less, but rather less than more—by his defensive fighters.

In short the main idea in this air warfare game is, as we've said before, to transport loads of high explosive over enemy territory and explode them as close as possible to the aiming point. In other words, bombs are the thing.

Now, put in its simplest terms, bombs are dropped by air-bombers who have to be not only carried accurately and efficiently over the target, but protected on the way by the rest of the crew working in conjunction. Air-bombers are therefore pretty important guys in the scheme of things.

But in a Squadron there are a lot of air-bombers and there are a lot of Squadrons in a Group. Obviously not all of these men are equally efficient. In such a large number there must be some good, some medium and some indifferent. And, since one man can only aim so many bombs at a time, the Group with the best record of successful air bombing is the one which has the *highest proportion* of

*good* air bombers and the *lowest proportion* of *bad* air bombers. It's no good having one absolutely perfect air bomber, a chap who can *never* miss—assuming such a fellow exists (Sgt. Straddle here says, modestly, he thinks he does exist)—if too many of the others are duds. What you want is the best and highest *general standard*.

This is where the Bombing Leader, whether Group or Squadron, comes in. The basis of his job is so to co-ordinate, advise, instruct, and generally look after the air bombers of his unit as to ensure the highest possible standard of bombing accuracy.

This sounds all right. But just what does this job of the Bombing Leader entail? We'll try to tell you. And let it be understood we're not writing this for the benefit of Bombing Leaders themselves. They, we hope—or rather we feel certain—know it all. We're writing first for those who, by the aid of the Bombing Leader Courses at No. 1 Air Armament School—"Good Openings for Promising Young Men!" (*Advt.*)—are about to make themselves into Bombing Leaders; and secondly for those who have just become air bombers and want to know what future there is in it.

In brief, the Bombing Leader's particular responsibility is the "bombing teams" of his unit, whether the teams are the "triple alliance" of pilot, navigator and air bomber, or the smaller partnership of pilot and navigator (B).

Here is what this responsibility means:

The Bombing Leader is answerable to his C.O. for the following points :

(i) He *must* be enthusiastic. Only that way can he maintain the enthusiasm, and so efficiency, of his teams. Enthusiasm is contagious : so is lack of it.

(ii) He must at all times ensure that his team gets the best from their training and that they learn all the lessons from their operations.

This in turn means initiating and co-ordinating the unit bombing training (including Air Ministry teacher training) ; supervising that most important part of an air bomber's training, map reading ; keeping up records of all practice and operational bombing ; seeing that all members of bombing teams are present at the analysis of results and are fully aware of just what their own part is in ensuring accuracy ; examining photographic results in the presence of the crew and the photographic section ; and generally keeping crews genned-up with all the latest tactics and equipment.

(iii) He must always make sure that the bombing teams are fully briefed, and, in particular, that the air bomber understands the details and method of release of his load.

(iv) He must maintain close liaison with the navigation officer, gunnery



*The Bombing Leader must be enthusiastic.*

leader and the photographic section on all "air-bombery" matters ; and with the armament and instrument section on the serviceability or failure of bomb-sights and other equipment.

(v) He must be at all times prepared to advise his C.O. (in conjunction with the armament officer) on operational bomb loads and their distribution on the aircraft.

(vi) He must also be ready to advise his C.O., and anyone else concerned, on all matters affecting the discipline and welfare of air bombers.

"Poof ! Not much in all *that* !" says Sergeant Straddle, deciding hastily, however, that *he's* not going on a Bombing Leader Course at any rate !

Touching, in conclusion, on these courses, they have, as you know, been going for a long time, but that doesn't mean they're in any way behind the times. There is a constant intake of instructors direct from operations and



bursting with all the latest tactical knowledge.

Again, just because the course is established and well known, units should not get into the habit of looking on it as a sort of conventional exercise that anyone can be put through, if no one quite suitable is handy. Units can not, and never should, consider themselves absolved from taking as much care as possible in selecting the right people. There is a small entrance examination at

the beginning and the results very definitely show that quite unsuitable people have been sent. Essential requirements before a fellow goes on the course are powers of leadership, enthusiasm for bombing, and a good operational record. One sometimes, however, cannot escape the conclusion that candidates have been sent just for lack of these qualities—in brief, to get them out of the unit. The old old story! Watch it, units, if you want to help.



#### No. 9.—LIGHTNING AND COMPASSES AGAIN

IN the article "Lightning and Compasses," which appeared in TEE EMM, June, 1943, we said that the after-effects of a lightning strike on an aircraft in flight would be a compass deviation, probably of  $100^\circ$  or more.

We've now just received the record of the ground swing of an Anson after it had had a lightning strike over the Irish Sea. Here it is:—

Aircraft Heading	Aircraft Compass Reading	Deviation
$000^\circ$	$297^\circ$	+ 63
$045^\circ$	$300^\circ$	+ 105
$090^\circ$	$269^\circ$	- 179
$135^\circ$	$241^\circ$	- 106
$180^\circ$	$244^\circ$	- 64
$225^\circ$	$255^\circ$	- 30
$270^\circ$	$272^\circ$	- 2
$315^\circ$	$286^\circ$	+ 29

You will see that the weighty deviations accumulated here would complicate navigation somewhat, so we should like to use this example, including the largest deviation yet recorded of  $179^\circ$ , once more to impress upon Pilots and Navigators the necessity of placing *no reliance at all* on their magnetic compasses if they become involved in lightning strikes.

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His parachute harness very nearly fitted correctly.

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**Don't scuttle yourself  
this winter**



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11/20/54  
RHP