TEE EMM

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Vol. 5 No. 4 **TEE EMM** July, 1945

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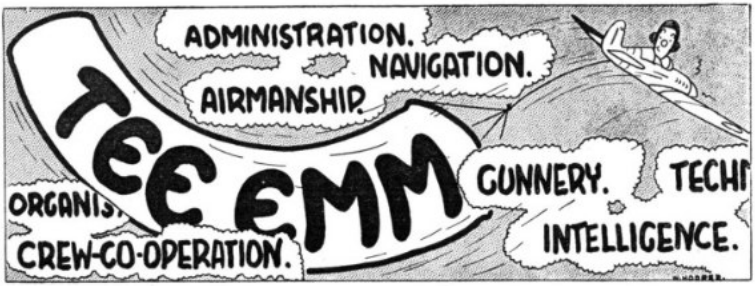
Pilot Officer Prune says— "Take Tee Emm *regularly ! Prevents that Thinking Feeling !"*



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

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

ADMIN. AND THE FUTURE

I. The R.A.F. Station

EVERYONE of you in the Service to-day, particularly those of you who are making it your career, should have one aim and ambition. First, to increase to the utmost your own efficiency, and, secondly, to do all you can to increase the efficiency of others. This ambition is not, like some ambitions, largely unattainable. It lies within everybody's reach and it lies close to your hand, that is to say, on your Station. For the Station is not only the place where your job is ; from the service point of view it is your home also.

Well, what's the form from here. How can you improve your own efficiency ? And how does your Station come into the picture ? How can you best help to increase the efficiency of others ? And again how does your Station come into this part of your ambition ?

These are easy questions really. The way to improve your own efficiency is, simply and solely to get right on top of your own particular job, to master it from A to Z. But mastering your job does not mean just knowing it backwards and

knowing nothing else. Your job on the Station is linked with other people's jobs ; thus the more you know about their jobs, the better you'll understand your own. Moreover, if you stop to think for a moment you'll see that your job is not the only one you'll ever have to do. You may easily be called upon, in an emergency, to take a hand in someone else's business and you can prepare yourself for that day. There are always Admin. jobs, for instance, investigations, welfare, and so on, where such opportunities present themselves. Any extra jobs that come your way should be tackled with enthusiasm. Don't look on them as a " bind." Consider them in the light of chances to gain valuable experience, to improve your own efficiency.

Now how is all this related to the Station ? Well, it is at the Station that the plans and orders of higher authority come to life and are either crowned with success or fizzle out as failures. It is on the Station that the details of these plans have to be filled in, and it is you who have to fill them in. On your attention to detail and on the thoroughness with which you translate these policies into action will depend whether the time and trouble that has been given to them will bear fruit or be wasted. The architect designs the house, but the builders must build it on a firm foundation. You are the builders, and the Station provides the foundation.

So much for your own efficiency. Now what can you do for that of others ? The answer is that the Station is your Service home ; it is on the Station that you live for most of your working and your leisure hours ; it is the Station which provides all the many and varied opportunities for contact with your fellow beings.

Happiness and contentment are a large and important factor in the promotion of efficiency, and all ranks are influenced for better or worse by their Station life. This life is made up of all the individual activities and conversations of those who live on the Station. These in turn make up the Station " atmosphere "—favourable or unfavourable, but always immediately noticeable to the newcomer.

There are many influences that contribute to this atmosphere ; for instance, the personal interest of the Station Commander, the standard of messing, the quality of the quarters, the social and welfare activities. But most important of all is the mutual relations between individuals, their personal pride in their own smartness and efficiency, and also in the smartness and efficiency of the Station as a whole. These make up the *esprit de corps* of a Station.

Here then is ample scope for individual initiative, for everyone can take a hand in building up *esprit de corps*, in ensuring the right sort of Station atmosphere. Smartness in turn-out, deportment, saluting, personal cleanliness and so on all make a direct contribution, and, don't forget, indirectly influence others by the force of example. Another way of helping is the encouragement or even definite assistance that can be given to the " misfits " who are found everywhere in life. Remember that it is not always their fault that they do not adjust themselves easily to the Station atmosphere ; it is very often the fault of others who have not the insight or goodwill to meet them halfway.

Thus the Station atmosphere is built up by all the efforts of all who live and work on it. Slackness, despondency and inefficiency all breed in the same swamp,

while smartness, optimism and efficiency propagate one another. By setting an example of smartness, and by spreading an optimistic outlook, everyone can help to raise the tone of a Station and thus its efficiency.

Air crew start with no small advantage in this respect. The nature of their job provides many eager imitators ; thus their influence and example are most important indeed. So their responsibility to uphold the best standards is all the greater. To take an interest in the other fellow and give him all the encouragement you can not only makes some return for the interest he is ready to take in you, but is likely to prove the shortest cut to a contented and efficient Station.

EASTERN AIRSTRIPS

PRUNE has at least one difficulty solved when he learns he is bound for the mysterious Orient. No longer need he peer anxiously out of the cockpit wondering on which of the multiplicity of runways he is officially supposed to land. Usually in the East there is only one runway, and therefore in whichever direction he lands he stands a fifty-fifty chance of being correct.

But there is still bags of scope for Prune to display his special talents, for the wind is not the only factor which decides landing and taking-off directions. Hills or trees at one end of the runway—more correctly airstrip—frequently mean that whether down, up, or across wind, landings are always made in one direction and take-offs in the other. Thus the possibility of fraternising with another aircraft travelling in the opposite direction is always present, and although Eskimos may enjoy rubbing noses, aircraft are definitely allergic to it.

Dust is another hazard accompanying take-off. During the dry season what little grass there might have been on the strip rapidly wilts, and soon fails entirely to bind the surface. Aircraft taking off leave behind them a huge wall of dust

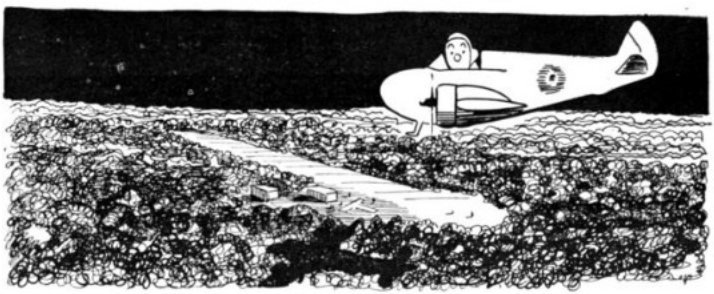
which usually blankets the strip, flight-tents and even adjacent erks in a very commendable imitation of a sand storm. Scrambles are particularly effective, for no sooner does the dust thin a little than another aircraft obligingly gives a repeat performance.

An example of the high standard of flying demanded of pilots was given during the advance of the 14th Army on Mandalay during January. The most forward fighter bases were over 150 miles away, and therefore fighter protection could only be maintained for very short periods. Timing their attacks well, the Japanese air force had an almost free hand harassing our troops, and preying on supply-dropping Dakotas. A strip nearer to the front was urgently needed, but of those in existence none was serviceable for fighters. Bomb craters and debris obstructed some, while others had been ploughed up by the retreating Japanese.

None the less, a Spitfire squadron moved in to one of the strips only a few days after its capture. The main strip was still unserviceable, but the aircraft landed and took off from a taxying track which ran parallel with the runway. At its widest point the track was only 25 yards in width. Its surface was rough, tall trees stood at each end, and treacherous air currents thrown up by their proximity buffeted the aircraft just before touchdown. Instant corrections were necessary to prevent heavy landings, but with skilful piloting it could be used.

Despite all these disadvantages, continuous patrols were carried out from dawn till dusk, and Jap air activity practically ceased in that area. Eventually the track was widened to 50 yards. One particularly dangerous tree was dynamited, and more Spitfire squadrons arrived. Dakotas landed all day bringing in petrol, oil and other vital supplies. And very soon a formidable fighter force was ready to meet anything the Japs cared or dared to put in the air.

But they didn't. Thanks to British determination to overcome all difficulties plus good piloting the Nips decided they'd had it.



Prune still wonders, as in England, which runway he's supposed to land on.

M.H.D.O.V.O.

As Patron of the Most Highly Derogatory Order of the Irremovable Finger, Prune has lately been throwing his weight about too much for our liking. He keeps on bumbling into this office to show us the latest list of M.H.D.O.I.F awards, and to recollect with pride and admiration well-earned awards of past days, till he's ended by giving us the impression that there's hardly anyone in the R.A.F. who hasn't got his finger well and truly in for keeps.

Now, as we all know, that is not the case and so, as a counterblast to Prune, we are introducing a new Order to be awarded *not* for Pruneries, but for really Good Shows where fingers have been well and truly out.

We are calling it the **MOST HIGHLY DESIRABLE ORDER OF THE VACATED ORIFICE**—M.H.D.O.V.O. —and it is this month awarded to an S.F.T.S. pupil pilot for Keeping His Head in an Awkward Situation and Carrying out the Correct Emergency Procedure.

After being airborne for thirty minutes in a Master II his engine started to run roughly. He was then at 2,500 feet, flying in rich mixture at 2,400 r.p.m. He immediately throttled back, and made for the nearest aerodrome. About a minute and a half after the rough running had started, thick smoke filled the cockpit and the engine lost all power. The pilot turned off the petrol and the ignition switches.

At 1,000 feet, realising he couldn't make the aerodrome, he locked his safety harness and tightened the straps. Then he pumped down a few degrees of flap, and turned towards a field in which he could make a landing not more than 40 degrees out of wind. On the way down, from only 1,000 feet, he called up on " Darky " the aerodrome for which he had originally been heading (his own local frequency was no use for this aerodrome) and told them that he was about to make a forced landing.

He made his landing in the field with no more damage than is usual in a good belly landing. A military truck arrived on the scene, and he left the occupants of this truck in charge of the aircraft. He himself telephoned Flying Control at the nearest aerodrome to tell them the story, thereby saving anxiety on his behalf and the necessity for organising a search after his R/T call had been received.

This excellent bit of work was rewarded by a green endorsement in his log book, and also by the following comments on his performance, which were made by the Chief Instructor :—" In many years' experience of flying I can think of no better example than this of a difficult forced landing really well and truly executed by even the most experienced pilot, let alone an S.F.T.S. pupil who has not yet even earned his wings."

IN case you don't know, the initials S.E.T. stand for Standard Efficiency Tests. These are now being introduced into the R.A.F. and are designed primarily to standardise the examination, testing and assessment of air gunners both in different units engaged on the same stage of training and also at the different stages of the training.

Like many other good things S.E.T.'s originated from across the Atlantic, being based on the U.S.A.A.F. system of "Phase Checking." This system is roughly as follows.

As much of the practical instruction as possible is reduced to "drills"—turret, gun, maintenance and so on—and the checking consists in assessing the gunner's ability to do each drill accurately and in a definite sequence. The examiner has with him a check list and a marking sheet and as the gunner carries out each detail, appropriate check marks are made on the marking sheet. The examiner, by the way, must say nothing whatever to the examinee beyond the exact words on the check list, so as to ensure that each gunner is examined under absolutely identical conditions. The exact equipment, tools and so on which he is to use for the test are also stated on the list, and all other conditions are also standardised.

Well, all this seems to us a very fair and reasonable way of going about things and, as we said above, the R.A.F. are swiping the idea from the Yanks, with a few minor modifications.

It has meant, of course, a good deal of preliminary work, for a "Job Analysis" had first to be made at various operational squadrons with the idea of discovering exactly what a gunner has to *do*, as against what he might have to know, and of cutting out any surplus theoretical knowledge. A Committee, however, went to work on this some while ago and as soon as they finished (about the beginning of last May) courses were started up at the Empire Air Armament School for instructors in all Commands. Round about the time you read this, therefore, S.E.T.'s will probably be in full swing throughout all stages of gunnery training.

Well, that's that, but there's another thing we might as well talk about, now we're on the subject of assessing Sergeant Winde and his pals, and that is Multiple Choice Examinations.

These come into the picture because it is obvious that there are certain subjects which must still be examined on paper—no matter how much we may want to cut out theoretical stuff. There are, however, two snags in written examinations of the old type, examinations, that is, in which a limited number of questions had to be answered in essay form. The first was that a good gunner was not necessarily a good writer. He

might know his stuff backwards but be quite incapable of expressing it on paper. (After all, his job *is* to shoot the enemy down, not write him down.) The second was that the limited number of questions could not possibly cover all the subjects that the pupil was supposed to know.

To obviate this unsatisfactory method of finding out what a bloke really did know about subjects in which practical assessment was impossible, Multiple Choice Examinations have been introduced. This is the way they work :

A central source prepares the examination papers, and each of these contains a large number of questions completely covering the subject dealt with. So far so good, but now we break away from tradition. As well as the questions this central source also provides the ***answers***. There are several of them to each question, but only one, of course, is the right one. (Rather like a newspaper " How Much Do you Know ? " quiz :— " An aspersion is (*a*) a musical instrument used in Bessarabia. (*b*) a tumour on a horse's behind, (*c*) a calumny, (*d*) a native of Aspersia.") All the pupil has then to do is to mark the right answer with a cross. (You see, he needn't even know how to write.) The other answers—the wrong ones, which are called " halo answers "—are so designed, by the way, that unless Sergeant Winde ***really*** knows the subject, he won't gain anything by guessing—though naturally

Sgt. Winde, a confirmed punter, picks the winning answer.

that won't stop him doing so. Here's a specimen question :

" Bullet trail is caused by ·
(*a*) aircraft slip stream
(*b*) speed of own aircraft
(*c*) air resistance
(*d*) movement of gun during firing
(*e*) wind
(*f*) Winde."

Well, you can see that both these ideas, Multiple Choice Examinations and Standard Efficiency Tests are good and will lead to increased efficiency in the Service and, above all, to greater equality in assessment than was ever possible under the old system.

In fact, they're such darn good ideas that we personally wonder why the hell they haven't been brought in before. But then we're only an Editor : we just wouldn't know anything.

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. ——, an Instructor at a Station in Egypt, for Conscientiously Making Sure There Could Be No Mistake.

He explained to his pupil that, should it at any time be necessary to make a belly-landing, this should be done at Aqir. By way of emphasising the point he then actually flew to Aqir so that there could be no doubt about the pupil being able to recognise the place in case of emergency. Arrived over it, the Instructor pointed out the various landmarks, explaining that it was impossible to mistake the place. Finally, he asked the pupil if everything was quite clear. The latter replied, " Yes, sir, except for one small thing : why does Aqir Station have on the panel alongside Flying Control the name ' Lydda ?"

The M.H.D.O.I.F. is also awarded to Lieut. (A)—— R.N.V.R. for a Revolutionary Discovery in Air Navigation.

On returning from flying one day this officer remarked : " It was very windy ; we saw a Lancaster with terrific drift on it, but then I suppose these big aircraft do drift a lot more than our Barras."

The M.H.D.O.I.F. is also awarded to S/Ldr. —— for Loosing Off Three Slightly Controversial Statements.

On one occasion, after lecturing his pilots on icing, he remarked : " If you have the cabin heater on in an Anson your instruments cannot freeze up." And again : " It is impossible to ice up under a thousand feet." And again : " A homing and a bearing are one and the same thing."

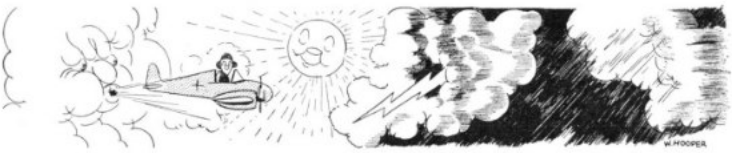
The M.H.D.O.I.F. is also awarded to Flight Sergeant —— for Nearly Meeting St. Peter Without Knowing Why.

This pilot, flying a Spitfire XVI, took part in a dive-bombing attack against rocket sites, carrying a full load, *i.e.*, two wing bombs and a 500-lb. bomb in the belly position. This last, however, is the same position as that normally occupied by the long-range tank, which therefore could not be carried.

Shortly after take-off, the pilot decided to change over to his long range tank which, being in this case a 500-lb. bomb, naturally yielded no petrol.

Not grasping why he got nothing in spite of having changed over to his long range tank, Flight Sergeant —— returned to base with all bombs on, in spite of the fact that as a 500-lb. bomb has very little ground clearance it is customary to get rid of it at all costs, if for any reason bombs are brought back. In this case, however, the clearance was just sufficient to enable the pilot to learn in this world, instead of the next, the real reason for his shortage of petrol.

INDIAN WEATHER AGAIN



WE'VE been asked by a few readers to give you a little more dope on weather conditions in S.E.A.C. particularly, of course, from the flying point of view.

Well, we've written it up in two or three articles already, but the subject is quite important enough to justify our saying it all over again.

In brief, when flying in India and other eastern theatres, you can successfully cope with all the weather you'll encounter so long as you use your common-sense and treat weather with intelligent respect.

With this general warning we'll now describe in detail some of the problems you're likely to come up against.

First, Cyclones. These drop an awful amount of rain and produce wind speeds which may be as high as 100 to 150 m.p.h. Turbulence is such that it is extremely dangerous for aircraft to fly in them. These storms are usually 200 to 400 miles across, but fortunately they move very slowly and their position can be located with fair accuracy, so that warning of their occurrence can normally be given. We have only one piece of advice on this matter of cyclones: DON'T TRY TO FLY THROUGH THEM.

Next come Squalls. We think your main worry will be Cumulo-nimbus, or Cb, clouds and resultant squalls. The latter are not confined to any particular time of the year, but they are most frequently met with during the June to September period of the monsoon and they are much less prevalent during the other eight months of the year. They can present a front not less than 25 miles in width and which may extend up to 150 miles in width. The cloud base is frequently down to 300 feet and sometimes lowers to sea-level. They are, however, fairly local in extent and move over in ten to thirty minutes. Squalls in this area frequently develop winds of a force 9–10 on the Beaufort scale (50–60 m.p.h.) and vertical currents of an order of 100 m.p.h. They are usually visible for some distance, so we advise you to make up your mind early and decide whether you go round, back or underneath.

The squalls are sometimes classified as (1) White squalls, (2) Black squalls, (3) Brown squalls, according to their appearance in good daylight. White squalls can be flown through at any height except 12,000 to 16,000 feet. Black squalls should be avoided if possible, but can be flown through at low altitudes (100–300 feet). Brown squalls

should definitely be avoided at all costs on account of their extreme turbulence. Usually this is quite possible because they are normally quite small and often only 10 to 20 miles in extent.

The worst height to fly through squalls —except Brown squalls which you don't fly through at all—is 12,000 to 16,000 feet, where icing conditions and turbulence are at their worst. The best height to select is 100 to 300 feet ; in other words, if you *can*, get underneath.

As a general but by no means hard and fast rule, the smaller the squall, the more intense it is likely to be, therefore always treat compact Cb clouds with the gravest suspicion.

A certain Wing Commander who has had considerable experience of flying in S.E.A.C. has supplied us with the following hints in connection with the nor'-wester. They are given here because they are equally true of monsoon squalls :

(i) Never attempt to land while the squall lasts.
(ii) Try to avoid it by flying round it or turning back.
(iii) If unable to avoid it, *fly low* (100 to 300 feet).
(iv) Instrument flying is usually impossible owing to the violent turbulence.
(v) Avoid fighting the controls or using unusual strength to control the aircraft. Try, in short, to adopt a relaxed attitude—like the jelly fish—and hold the stick as lightly as possible.

The third of your problems is the South-west Monsoon. Operational flying frequently means covering from 400 to 500 miles to the target area, and usually involves crossing at least one mountain range. This is quite a problem during the monsoon when the ground beneath you is frequently out of sight and often completely unsuitable for any form of forced descent because of mountains and jungle. The general idea of this remark is to remind you of the inadvisability of getting lost. It will probably be impossible for topographical reasons, to fly under a large front of Cb during the monsoon, either on the way out or on the return trip, but you can, with reasonable safety, fly over the surrounding cloud (frequently 10/10ths) at varying heights from 16,000 to 20,000 feet, and you can also fly between the large " towers " of Cb cloud. Do not fly too close to these towers ; they are most unpleasant. You can see them boiling over furiously at the top and they frequently throw out hailstones up to 3 inches in diameter. Regard these foreign bodies as definitely hostile ; they certainly will not improve the aerodynamic qualities of your aircraft if they hit it.

When cloud flying in daylight, it's usually possible to tell when you unintentionally enter a mass of Cb, as it gets darker and darker as you go further in. If you notice this before the air becomes too turbulent, execute a 180 degrees turn at rate 1, and come out into the lighter cloud.

Before you enter the centre " bubble " of Cb cloud, the rapidly increasing turbulence suddenly ceases and you find yourself in pouring rain (assuming for general reasons that you are below the freezing level). This rain and the comparative stability that goes with it last for a short time only and cease as suddenly as they began. Then you are in, brother, and hold everything ! In

scientific terms this means that the centre column of air is ascending at a mean 10,000 feet per minute. It also means that if you are diving at 5,000 feet a minute, you are really climbing at 5,000 feet a minute—a thing you'd imagine only Prune could do. The turbulence is indescribable and we think that only complete concentration and the speedy assistance of your guardian angel will save you.

To give you an idea, we'll tell you that before the war, a flying boat once carried an accelerometer through a Cb cloud at 6,000 feet just to see what happened. Well, once it registered $5\frac{1}{2}$ G and on three other occasions 5 G. This particular aircraft which was scheduled to break up at 6 G., came out very u/s, but managed to make base and land. There are very few living pilots who have flown through a Cb cloud around 10,000 feet. You are very definitely warned that if you get over-confident, Cb will GET YOU.

Well the sum and substance of all this advice is very simple.

Do not fly through dark doubtful looking weather if you are already flying through conditions of rain and low cloud. If you see inky black weather ahead and you are in the clear, you will be able to assess the extent of the storm. If you are flying under 10/10ths cloud and it is starting to drizzle and gets darker, come down to the ground, pin point your EXACT position, check your route for obstacles, and either turn back or proceed below the storm until conditions become just too bad for you to go on.

The essential thing is to make up your mind early to turn back and don't vacillate. It may then be too late to help you, for if you get lost, anyone of several things may happen to you : you may fly into a " stuffed cloud," you may fly into the " bubble," or you may be unable to force-land and find yourself too low to bale out. If you climb, you may hit that confounded " bubble " and be buried on site—when found. SO WHEN IN DOUBT, TURN BACK AND TURN BACK SOON ENOUGH.

One final point : when flying above the cloud mass (anti-glare goggles are a necessity by the way) and Cb starts to build up some distance ahead through the top of the mass, aim to fly around it. Made early, this decision means only a minor alteration of course ; made late, you may get lost above the cloud with the result that the sortie may prove abortive. Even if you are some distance above the cloud mass when you see it break through, remember that unless you can climb at 10,000 feet per minute, it is almost certain that the Cb tower will out-climb you.

Prune thinks he's turned back just soon enough.

COMING DOWN IN CHINA

IT is very possible that in the near future you may find yourself operating in, from, or over China. This being so, it is equally possible that you may have to bale out and get yourself back home safely. The more therefore you know about China, the Chinese and the getting yourself home safely the better. So we are here printing—in abridged form—a most helpful and interesting article on China written by U.S. Naval officers for the information of U.S. carrier pilots in the S.W. Pacific area. It is full of good tips, and who knows but that it may be you who will benefit from them? In any case you may learn something about China you didn't know before.

Now the very first point (so say the authors) about baling out in China is this: *Don't worry—trust the Chinese.* Literally hundreds of American fliers have dropped out of the skies into Chinese territory—many of them way behind Jap lines—and these lads walked back with the greatest of safety and enjoyment. You know why? This is why, and *never forget it: Because the Chinese brought them back.* If there's one axiom to remember about China and your forced landing there, it's this: *Trust the Chinese!* They'll take care of you and *they'll get you back!* Forget everything else about evasion and escape if you want to, but never forget that: *Trust the Chinese!*

A word about the military situation in China, though, of course, you've got to get the latest dope on that from your Intelligence Officer, who will be posted on the latest Jap positions and moves. But here is a general tip: The China coast is not fully occupied by Japanese, though they now hold the main ports. They hold Wenchow, a couple of islands in Santu Harbour, Foochow, Amoy, Swatow, and several small islands off the coast on the way down. But all those miles in between these main cities are in Chinese hands. So, as far as the China coast is concerned, *don't worry* about having to land there. If you have any idea where you are when you get in trouble, you can pick your spot, make a wheels-up or wheels-down landing—as you prefer—step out of your plane, be greeted by the local village chief and be taken off to a Chinese feast—the "town hero." From then on until you get back to your ship, it'll be "the banquet route" for you.

Prune is all for the "banquet route."

This is how your landing on the China coast will go. You'll either bale out or bring your plane down on one of the numerous flat and level stretches just inland all along the coast. Undoubtedly, a number of Chinese will have seen you and will be near you when you land.

Right at first they'll be hesitant. They probably won't be sure whether you're an American or a Jap. *The thing for you to do is this :* Just stand still, take off your helmet and goggles if you have any on, and point to your flags—Chinese and American. Just about that time they'll recognise you and come up to greet you. (Here's one *Don't !* Don't reach for your gun at any time in these first few minutes. That will scare the Chinese and make them think you are an enemy.) Now, naturally, these folks aren't going to start rattling off English. Chances are they won't even know pidgin English. Your Chinese, too, probably won't be so fluent. So here are your best bets : First, if you have a " Pointie Talkie " with you, start using that. Most of these people probably won't be able to read. But they'll quickly get someone who can. Then you're all set. The " P.T." has about all the essential questions and answers you'll need. Second, use your hands. You'll be amazed at how well you can talk with them.

Now you're safely in the hands of the Chinese. What next ? Well, they'll take you to the nearest village where you'll be greeted by the Village Mayor. He will know all about what to do with you.

First of all he'll probably produce someone who speaks English. It may be a young student or an old scholar, or a Chinese back from the States. Anyway, in every large village someone speaks English.

Next he will probably follow his official procedure in handling you. He'll telephone the District Magistrate to give

The Mayor will phone the Magistrate.

him the dope, and the Magistrate will pass the word to the Provincial Governor, who will slip the word to the nearest American headquarters and they'll take over from there. They'll advise the Village Mayor where to take you and within from twenty-four to forty-eight hours they'll have a man with you to return you to the proper place.

Now here are a few little tips in connection with these first few days :

Tip Number One. You'll probably have to do considerable walking for several days. You might be lucky enough to get a sedan-chair and if you are hurt in any way they'll certainly make some arrangement to carry you. But don't squawk too much if you have to walk a little—or even a lot.

Tip Number Two. The Chinese are curious—terrifically so. They are just normally very curious about very simple things. And when you come along, one of the first white men many of them have ever seen, you're really going to be a curiosity. I'm warning you now ; they'll come up to within about ten inches of your face and just stare at you. They'll form a crowd around you wherever you go, whatever you do—and just stare. They'll watch you while you're eating and even watch you while you're sleeping. When we say they're curious, brother, we mean curious.

But—and this is the saving fact—it's a good natured curiosity, really good natured. The Chinese have a marvellous sense of humour. Every attempt you make to be a little playful or comical will bring down the house. If you just wink at the little girls, they'll giggle. If you pretend you're going to grab one of the little boys, he'll jump and the crowd will get a terrific boot out of it. You can't go wrong with this audience.

And that brings us to *Tip Number Three.* Keep your sense of humour, Joe, keep your sense of humour ! As long as you do that, you'll have a wonderful time, and so will all the Chinese. But, lose your sense of humour and you're a dead duck. Everything will gripe you. All the little inconveniences will get on your nerves. Everything will be lousy.

Tip Number Four. Payments and Rewards to Chinese. Generally speaking, you won't be able to pay for a thing. The Chinese consider it an honour to take care of you. But, at the same time, it's a good idea always to offer to pay. If the Old Man won't take any dough, slip his little son a five spot. But you'll usually find that an American cigarette or package of them, or something like your hunting knife, is about as nice a gift as you can give your benefactors.

The final *Tip—Number Five.* Be kind to the kids. The Chinese love their

Prune is always kind to kids.

children—and you'll find those little kids as cute as the devil. Play with 'em and pat 'em on the head. And in doing so you'll be making yourself a darned good friend of the Chinese.

We'll now note a few more facts about the Chinese which might help you along.

You've probably been told by your squadron " doc " about *food and water* and all those things. Dysentery and diarrhœa (called the " Yangtze Rapids " over there) are, of course, the problems. But it's really pretty simple. Follow these two rules :

Number one : *Eat only hot, cooked foods.* Number two : *Drink only hot, boiled water.*

Stick with these two rules and you'll be O.K.

About food : along the road and in tiny villages, the two main—and reliable—foods are rice and noodles. They usually throw in a little pork and a few vegetables, so you get a good meal out of it. Incidentally, if you can say " Chow mein " you'll be saying " fried noodles," and you'll find yourself getting a darned good dish. Another old reliable is soup. The Chinese make excellent broth and this is very safe. And, of course, there are always eggs, and plenty of them. You'll probably get them without asking, but if you ask, all you have to say is " Gee Don " and you'll get fried eggs.

While the language question isn't of vital importance to you, as a " drop-in " visitor, you should have a little background on it. In the first place there isn't one Chinese language. The fact is, there are literally hundreds. However, there are two main languages—Mandarin and Cantonese. Mandarin is the language of North China, while Cantonese is spoken in the far south around Canton and Hong Kong.

Mandarin has now been designated " the national language " and is the most generally understood throughout China. Remember, however, that in practically every community throughout China a different dialect is spoken. A fellow from one village might very well have trouble understanding a gent from a place twenty miles away.

You must remember, too, that *only a very few Chinese can read.* Perhaps less than 10 per cent. of all the people can read the language. (There is only one written Chinese language.) So when you whip out your " Pointie Talkie " don't expect the nearest Chinese to start reading it off.

One thing you ought to know is the Chinese arm motion to indicate " come here." It's a regular wave—just the way we'd wave to say so-long. So when they " wave goodbye " to you, you'll know they want you to " come here."

And that is about all you need to know. Be sure to take along with you, when you take off, all the " Escape and Evasion " materials available to you. Most of those things will come in handy.

Be sure, too, to listen carefully when the Intelligence people are giving you the latest word on the military situation on the China coast. It may be much changed when you visit there from what it is now.

And, finally, " Trust the Chinese." They'll take you a long way, and they'll take you in the right direction. You'll have no better friend in the world, when you drop out of the skies on to China's ancient soil, than the lowly Chinese coolie.

When you drop out of the skies.

CARELESS FLYING COSTS LIVES

WE'VE been flinging this slogan about fairly frequently in TEE EMM—it's a useful fill-up when we're a bit short on a page—and it's occurred to us that by now some of you may be thinking it *is* only a useful fill-up when we're short on a page.

But, believe us, it's more than that. It's not a fill-up : it's a stark staring unhappy truth. And we'll prove it to you by the following short report of a recent accident.

A Flight Sergeant pilot and his crew of three were briefed for a night navigational exercise in an Anson and duly set off at about 2 a.m. Three hours later the aircraft was a wreck, the W/Op. was dead and the other three of the crew were seriously injured.

What happened ?

It's all quite simple. Just gross carelessness on the part of the pilot.

After two legs of the exercise had been completed the pilot turned for base and set course as given him by the navigator, flying at the briefed height of 4,000 feet. Soon after this he pin-pointed himself and found he was ten to fifteen miles to starboard of track. He had not asked the navigator to find out their position : he did not tell the navigator the result of his pin-point. He made no attempt to regain track, or even to alter course, although he was obviously heading for high ground : he did not even consult the navigator about his position in relation to high ground in the vicinity. In point of fact he thought he was over the sea, which the navigator could easily have told him was not the case.

A little later he saw well ahead of him a layer of stratus cloud at about 3,000 feet. He decided to come down to 2,000 feet and fly under it. Again he did not consult his navigator nor tell him of his intention.

He then crashed into high ground with the results mentioned above.

That's all. Bad and careless flying. And it cost a life.

FULL MARKS

FULL Marks for ingenuity are given to a certain Canadian pupil, a very keen type. Correct E.T.A. had been stressed at all briefings and the pupil had evidently taken this to heart. At any rate his pilot was considerably startled by an alarm clock suddenly going off. It had been set by the pupil for E.T.A. on the exercise.

THE DRINK TRAINER

HERE'S a most useful apparatus for teaching air crews how to swim. It was invented by Durham University Air Squadron and has proved most valuable. Thirty-one air crew cadets learned to swim by it—or in it—during their six months' course. We're telling you about it here in case other training establishments care to install one of their own.

There's no particular gen on how to make it, and the photograph is self-explanatory. The rope is ordinary white rope as used by—or as pinched from—the Balloon people, and it is spliced through brass eyelets hammered into strips of ordinary canvas. The whole doodinkus is suspended from the roof or ceiling so as to hang a few inches above the floor line.

All very simple ! A child can make it—if you have a child.

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 unofficial correspondence, to which we have tried to dig out an official reply.

LETTER. "SIR:—In the course of my service of a few years in the R.A.F. as a Navigator/Bomb Aimer, I have seen many reprints of the charts G.S.G.S.4080.

"They have changed colour, isogonals have been revised, shapes of towns have been modified and statute mile and nautical mile scales have come and gone.

"All this leads to the question, why, in all this time, have not the spot heights been converted to feet? Is there any reason for retaining a unit which to my knowledge is never used in Navigation in the Service?"

REPLY. This is a very tricky one. Just before the war, the R.A.F. plumped for "metres" and were just going to have all their altimeters altered, but the arrival of this war meant "feet or nothing" as far as these instruments were concerned. The Army however, has for long standardised on metres. This is because their main source of mapping is the direct reproduction of foreign sheets, always in metres, e.g., the 1/25,000 series of Germany. Since 9,000 sheets are out of the question for us to re-draw, we reproduce and revise.

It is essential that the Air Force and the Army should work on the same system (e.g., the 1/250,000 Army/Air series), so as a result "metres" are used as far as possible and we hope to standardise after the war. To show how nearly the R.A.F. were to changing to metres before the war, it is of interest to note that the 1/500,000 of Great Britain has the contours drawn in metres and a special spot height plate in feet, so that it could be changed easily. The change never came, and for six years hundreds and thousands of copies of this series have been used with metre contours and feet spot heights; and yet—our map people point out—as far as they know, not a soul has never noticed it—or at any rate, has not pointed it out to them.

LETTER. "Sir:—I wonder if the following is of sufficient interest to be dealt with in your Brains Trust.

"The subject is Emergency Lowering of Undercarriages and I may be rushing in where angels fear to tread, but I am going to venture to criticise Pilot's Notes. I have found variations in the sequences of actions laid down for different types of aircraft.

"I am only thinking of hydraulic undercarriage, and what I say is this: If your engine pump fails, go straight to emergency. Don't try using the handpump on the normal system. I know that this is the drill laid down for some types, but it is not for all, and I think it should.

"I advance two reasons for my theory. Firstly, if the failure is due to mechanical breakdown, use of the hand-pump on the normal system may result in bits of metal being forced through the normal pipe-lines into the jacks. This is unlikely, but possible. Secondly, if the failure is due to a leak, hand-pumping on the normal system will waste more fluid, and though it won't affect your chances of making an emergency lowering, you may pump away just that pint of fluid that you need for your flaps.

"Of course, once you have got your wheels down, you should return to normal system and try hand-pumping for your flaps. You may or may not get them, depending on the nature of the failure. Pilot's Notes for many types start off: 'When both normal methods of the lowering undercarriage have failed, it may be lowered by the Emergency method.' Is there a reason for this that I have overlooked?"

REPLY. The experts say: We think our correspondent must be referring to rather old Pilot's Notes. We have looked up all the modern (blue cover) Pilot's Notes to which his remarks apply, and of these find that Beaufighter, Martinet, Master, Mosquito and Oxford all follow his suggestion. Wellington and Warwick do not, and we are afraid this is due to the fact that the first Wellington Pilot's Notes were written before our correspondent's idea occurred, and all subsequent Wellington and Warwick notes have perpetuated the old method. It is surprising that no one has ever pointed this out to us, but perhaps it is because the handpump takes so long on these aircraft that it is not often used. On the face of it we think we ought to change the Wellington and Warwick.

An interesting variation is provided by the Typhoon and Tempest, on which aircraft it is considered that positive lowering by handpump is preferable to gravity lowering (with air assistance on the Tempest). The Pilot's Notes therefore suggest the use of the hand-pump in the first instance, but add that if the red lights do not come on within 12 strokes, the handpump should be abandoned and the gravity system used.

Another variation is to use the handpump to lower flaps partially before making any attempt on the undercarriage. This is recommended on the Master and Martinet. We think the only reason why it is not recommended on all the other aircraft mentioned is that excessive engine power would be required to maintain height, with flaps partially lowered, during the process of pumping the undercarriage down. It was considered on the Typhoon, and turned down for that reason.

WE TAKE THE BLAME, BUT . . .

LAST month we had an article called, "March Him in, Flight Sergeant!" reprinted from three and three-quarter years earlier. It aimed at explaining the procedure of weighing off delinquents at Flight Office and was for the benefit of young officers who would some time or other have to take on that job.

Well, as a few correspondents have pointed out, there is a mis-statement in the paragraph which says, "Make your decision, after reference to the conduct sheet, and either— (*a*) Dismiss the case; (*b*) Award punishment, etc., etc."

We've taken the point up with the Admin. experts here—who, by the way, originally passed the article—and they say that the words "after reference to the conduct sheet," are in the wrong place. They add: "The present text could be put right by the following amendment: "Make your decision and either—(*a*) Dismiss the case; or after reference to the conduct sheet, (*b*) Award punishment, etc., etc."

Personally, we can't help feeling that it would have saved us, and our correspondents, trouble if the Admin. types had thought of that when passing the article before publication, but there it is. As we said above, we take the blame. But . . .

THREE AND THREE-QUARTER YEARS AGO

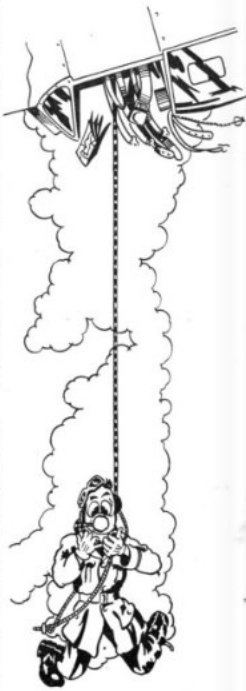
Each month we publish a selected article from our corresponding issue of three and three-quarter years ago. The following piece comes from our issue of October, 1941 :

KEEP YOUR COCKPIT TIDY

TIDINESS means having things in their proper place and seeing that they are used in the proper way. Do you realise that on such a simple thing as the tidiness of your cockpit both your life and your aircraft may depend. We won't here start an argument as to which is the more valuable of the two ; but one or other, or both, may easily be lost—just because you tried to save those few moments spent in seeing that everything in the cockpit was O.K. One of the reasons that the designers thought up a proper place for everything was that everything might go in its proper place. And one of the reasons they carefully worked out the best way of doing things was that things might be done in the best way.

Now probably the most important thing, if any one thing can be called more important than another, is to have your safety harness properly adjusted and properly doing its job. The harness straps are not numbered 1, 2, 3 and 4, just to help you spot whether one is missing. It's done because, if arranged in this order, they most easily fall apart when the safety pin is pulled out. So always make certain that your harness is buckled on in the correct order.

Then, when strapping yourself in, the harness should be tightened up a little more than actually feels comfortable : this feeling, like the effects of a heavy meal, will wear off, for the harness slackens when one gets settled into the seat. One of the main reasons, of course, for wearing a harness at all is to keep you in the seat when upside down, and you don't need Isaac Newton to tell you that if it's loose you'll fall out. Nor, we hope, do you want Isaac to add that for the same reason your parachute will probably fall out, too. While you may not have much difficulty getting yourself back, the parachute will be the devil of a job, owing to that fact that it only just fits into the bucket seat. You'd be unlikely in the circumstances to fit it back properly and this might mean that the parachute pack would ride up on the front of the seat and leave you sitting in a most uncomfortable position—as well as cramping your style with the control column.



P.O. Prune is having oxygen tube trouble.

Now for the oxygen and R/T equipment. In these days of high-altitude fighting, oxygen is one of your best friends, and should be treated as such. After use, remove the oxygen tubes carefully from their fittings. If they are constantly tugged off, the fittings wear, and the tube stretches, weakening the rubber, with the result that a sudden jerk on the tube—even from a quick turn of the head—at a vital moment may easily pull it out of its socket or break it.

The oxygen tube, being of considerable length, should not be left flapping around the cockpit, waiting for a chance to garrotte you when you aren't looking. It should be passed over the left shoulder and across the back of the neck, over the right shoulder, across the front of the body, and then plugged in. If not using the tubing, stuff the plug end into the breast pocket of the flying suit.

Take care of your R/T helmet. Don't throw it about the place to show what a devilish care-free guy you are. Put it down gently ; there are many small parts in the earphones which don't like rough treatment. If you give it to them, they will probably get their own back on you—just when you can't take it.

You always use your own flying helmet : do the same with your R/T and oxygen mask. This mask is designed to clip on to *your* helmet according to *your* measurements, and you can easily mould the mask to the shape of *your* face—however unusual the latter may be. For the above reasons, apart from considerations of cleanliness, catching someone else's 'flu, halitosis, foot-and-mouth disease etc., it is very important always to use your own mask, both for comfort and efficiency.

Do avoid falling into that very bad habit of leaving one side of the R/T and oxygen mask unbuttoned until just before you think you will want it. That exact moment for using it is never actually apparent until it is too late ; so get in the way of clipping your mask to your helmet on both sides.

All these things are things to *do*, not things to *avoid*. Everything in the right place and everything doing the right job gives not only added efficiency, but added comfort. And the more comfortable you are, the fewer distractions you will have, which is all to the good, for your job needs every bit of attention you can give it.

DOOMIE SAYS

Doomie Fawkes says Don't Forget Your Plot.

THE SEVEN DEADLY SINS OF A.G.'s. No. 7.

Opening Up Too Soon.

KNOW ALL ABOUT C.G.

SOME pilots flying heavy aircraft, it has been reported to us, do not yet quite understand all about the Centre of Gravity (C.G.) of their aircraft, and its effect on aircraft handling. If you are one of these, gather round and we'll try and explain it briefly—in so far of course as we can understand the damn thing ourselves.

The first thing to get hold of is this: Upon the position fore and aft of the C.G. depends the ease or difficulty of handling. If it is right, the aircraft is stable in pitch, and will fly itself without attention to the elevator controls. If it is too far forward the aircraft will still fly itself but will be too stable, and so heavy on the elevator. If it is too far aft, the aircraft will be unstable and constant attention to the elevator controls will be necessary.

Everything would be O.K. if the C.G. always stayed in the right place, but unfortunately it doesn't. It moves fore and aft, depending on the loading necessary for different duties, the consumption of fuel and release of bombs; and the designer of course cannot cope with this. All he can do is to try and keep the movement of the C.G. within reasonable limits. But even after the design has been settled the service loads are frequently added to and nearly always aft of the original C.G. This means a constant tendency for the C.G. to creep backwards rather than forwards and so make the aircraft less stable.

At this point we feel we can't do better than delve into Pilot's Notes General and give you some real gen on the actual effects of instability on the pilot's handling of his aircraft under varying conditions.

Prune doesn't know that moving his C.G. farther back makes him less stable—but he soon will.

Any pilot has a right to expect that, if he trims an aircraft by the elevator tabs (so that he is neither pushing nor pulling on the control) and then pushes the nose down, he will need to push to hold the nose down. If the aircraft is stable, this will be so, but if it isn't, he will find that, having pushed the nose down, he must then pull to prevent it from going down further. The feel of the control is reversed. In the same way, the necessary movement of the elevator trimming tab is reversed in an unstable aircraft.

Now let's take dives. If an aircraft is stable at all high speeds and trimmed in level flight, it will require an increasing push as it gathers speed to hold it in a dive. But the unstable aircraft will need an increasing pull to prevent it from going over on to its back. If this push or pull becomes excessive, it may be lightened or washed out by trimming the aircraft nose or tail heavy. There is no objection to the use of trim tabs during manœuvres so long as the pilot realises that he is using a very powerful control and operates it slowly and with care.

If the stable aircraft is trimmed into the dive it may need a heavy pull to get it out and it may be carefully retrimmed (tail down) during the recovery. On the other hand, if it has not been trimmed into the dive, it will tend to come out too quickly and care is necessary to check this tendency. The unstable aircraft, however, trimmed back to relieve the stick load in a dive, will recover too quickly, needing a push to restrain it. If not trimmed into the dive, the pull will slacken during recovery.

An aircraft may be stable, trimmed in

the dive, although it was unstable in level flight. This aircraft will have to be pulled out of the trimmed dive ; but when recovery has been started, a push will quickly become necessary to check the rate of recovery, because it has passed from a stable to an unstable condition of flight as its angle of incidence was raised.

So much for dives, now for turns. Too much longitudinal stability makes an aircraft heavy on the elevator in turns. Instability tends to tighten turns, and the pilot must be on his guard to avoid stalling, blacking out, or overstressing the aircraft. Don't forget that an aircraft may be stable in straight flight and become unstable in the turn, because, as we said above, the angle of incidence was raised.

When an aircraft is longitudinally unstable it will commonly either dive or stall if left to itself. An aircraft may, however, appear to be neutral or just stable judged by the action required to trim it at different speeds, by its behaviour in diving or turning, and yet show instability in a tendency to " hunt," to build up a pitching oscillation with a rising and falling I.A.S. But more usually this " phugoid " oscillation damps itself out and the aircraft is completely stable.

Finally, remember that the longitudinal stability of an aircraft must clearly be considered in two conditions of flight, either with the controls held rigidly or with the controls left free. It is the second condition that decides how the pilot will like the aircraft, because it determines the nature of the control effort that he must make.

Well, that's all—if it's any help. The main thing is to remember the tendency of the C.G. to move aft and to be prepared for it. Not a bad idea, either, perhaps, to get a little practice in flying with the C.G. further aft than you're accustomed to—but not outside the limits of course—so as to familiarise yourself with the resultant alteration in handling and stability. Apart from increasing your knowledge of your aircraft, which is all to the good, it might be very useful, say, in the event of a bomb hang-up suddenly moving the C.G. aft when you weren't expecting it.

He could have sworn he pressed the right feathering button.

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WHOOPER - APOLOGIES TO MESSRS KOLYNOS