

SOME PERSONAL FACTORS IN FLYING TRAINING *

FLY. LT. S. ROY.

Test Pilot. H. A. L. Bangalore.

This talk is likely to be of some general interest for doctors present. For Air Force doctors here, it will probably be more relevant. Certainly I hope it will lead to greater understanding of the personal problems involved in our pilot training.

As most of you know, not every one who comes to the Air Force College aspiring to be a pilot gets to be one. The number of pilot rejects in every course is high. In my course for instance we started with over seventy and only thirty-five or so passed out. Why, we shall examine later but here I might mention that most failures are in the pre-solo stages. Take-offs and landings are not the most difficult things as some people think they are, but you will appreciate that they are essential. Let us get on then to the personal factors in flying training, taking first the pupils.

PUPILS

Selection Boards

Are the pupils generally suitable pilot material? Do they have mechanical aptitude; are they air minded? You will be surprised to hear that there was in my course one person who could not cycle, when he had come to the college hoping to be a pilot. I learnt to fly long before I learnt to drive. This is true of many others. Most of us had little or no knowledge of aircraft or flying, just a vague desire to fly or to wear wings some day. There is plenty of keenness, but you will agree, in pilot training that is not always enough.

The Selection Board makes a commendable effort in applying various scientific techniques and ingenuity in the selection of future pilots. While the tests applied in these Boards form a reasonable criteria for selection of suitable pilot material they are by no means the last word on the subject. There is still scope for considerable improvements in the field.

From the Selection Board the successful candidates move on to the Medical Board. I understand that in the Royal Navy labyrinthine tests are conducted to detect proneness to sea-sickness among would-be sailors. Submarine crew I know are subjected to tests for claustrophobia. Could some such tests be conducted for our potential pilots? To the best of my knowledge none exist at present. Visible symptoms of claustrophobia may not be apparent in a cockpit, but if present to a marked degree in the subconscious mind may undermine confidence and efficiency. Airsickness whether due to physiological or psychological causes contributes to high wastage figures.

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Once the potential pilots have been selected, what can be done to develop the qualities essential for flying—qualities such as enthusiasm, coordination, confidence, ability to relax in the air? Well, our would-be pilot gets a fairly long spell of training at the Joint Services Wing, where he has ample opportunity for developing these qualities.

Joint Services Wing.

Here, among other things considerable stress is laid on games. Games you will agree, must certainly contribute to better coordination. Riding at one time was made compulsory for Air Force cadets. Perhaps riding is still compulsory there for our cadets. Why not driving? Surely there is a closer and higher correlation between success with smooth confident driving, and good flying.

At the J.S.W., at least as I knew it, a certain sense of rigid discipline is instilled which does not help very much in flying training. Perhaps we have to accept this as inevitable because discipline cannot be avoided. However, the more seriously a cadet in the J.S.W. takes this the more liable he is to stiffness and jerkiness in the cockpit. If you cannot relax in the cockpit (perhaps just because there is an officer on board) you might as well give up flying. A cadet who was with me at the J.S.W. and later at Air Force College was being thrown out after over 50 hours of Harvard flying. Prior to his 'chuck out' test, sometimes euphemistically referred to as a 'progress' test, he did a few press-ups and sit-ups in the crew room. I could hardly believe it, but our friend was in earnest. He thought this would help and said something to the effect of now being able to take on the C.F.I. I dare say, he must have jumped a foot instead of the usual six inches while coming to attention before the C.F.I. But all this did not help. He was suspended for harsh and jerky flying. Again, one morning when I was briefing my pupils, I observed one very smart flight cadet, ex-J.S.W., saluting me over a dozen times as he passed up and down. He too was thrown out. Then I had a pupil who was initially so tense in the cockpit that I could hear him panting into his mask all the time, even while taxiing. Once he had decided I was not there only to observe his faults and shout, he began to take it easy. He got over it.

Now, in the Air Force College, doctors, instructors in the air and on the ground, almost everyone in fact, can help to create a relaxed atmosphere for the Flt. Cdts. Keenness and determination must be combined in an alert but relaxed mind. Since mind and body are not separate entities, such being the concept of modern psychology, it follows that the body too must be relaxed. We have considered now the make up of our pupil material. Let us see further how these pupils react to flying when they come to the Air Force College.

Air Force College

Here you will find that pupils, one and all, will talk to you about flying strain, how they feel like smoking a cigarette after flying, or feel sleepy in the afternoons. The factors contributing to flying strain and perhaps, thus, to airsickness are several. Let us consider a few.

Cockpit Discomfort. For the first few hours of flying, the cockpit is always a strange and inconvenient place in which to learn your lessons; too many instruments,

too many levers, too little space, and it is usually either too hot or too cold.

Flying Clothing. The discomfort of a cockpit is fully appreciated when you put on a pair of overalls, parachute, safety harness, a helmet and mask. There was a pupil I knew who in analysing the reasons for his airsickness attributed it to his mask. He did not like the smell of rubber from his mask and decided to get over it by scenting the mask. Unfortunately this did not succeed in removing his airsickness either.

Fear of Suspension. At the Air Force College you will hear pupils often saying 'here there is too much mental strain, though at the National Defence Academy it is physically tougher'. This mental strain arises from a sense of insecurity. The pupils are aware that they are liable to be 'chucked out' at various stages of their training e.g. on circuits and landings, navigation, formation flying, night flying or even general flying—almost at any time. Flight Cadets have been in training for several years and it worries them to think that even in the last few months of their training they can never be sure they can get through. To a large degree this cannot be helped; pupils must, within the hours allotted, be able to learn each phase of flying. A certain quickness in learning is essential for a service pilot. But you will appreciate that the handing out of warning chits too often by ground instructors and flight commanders is bad for the morale.

Fear of the Instructor. Over 80% or so of pupils think they can fly better with instructors who do not shout, nag or abuse. If they get to feel the instructor is being an "old woman" about their flying, pupils get to be scared of the instructor and develop a dislike for him. Very often, during instrument flying, a pupil will keep his speed steady, perhaps height too and turn through 100° or 180° when he is supposed to maintain a straight course. Probably his instructor had been raving about speed and height, and, the pupil in his fright concentrates all his attention on these two aspects. Or take a pupil who misses out one of his safety checks - we call them vital actions—prior to commencing an approach for landing. Shout at him for that and keep it up for another 30 seconds or so and you will probably see him messing up his approach, which in turn usually ends in a poor landing. In the next attempt to land you might find the pupil with vital actions all correct but flying poorly on the circuit, converging on to the runway, losing height on the downwind leg and so on. The worst thing, and I can tell you it is a common thing, is for an instructor to shout on the 'approach' or on 'overshoot'. Then the pupil is not only scared but quite confused.

Fear of the Air. It is fairly natural to be somewhat afraid of the air. Whether consciously, unconsciously or subconsciously, I think we all are. This inherent fear leads to hamfistedness - tense and jerky manipulation of controls. During formation flying when there is another aircraft near you, and later, aircraft all around you, tenseness, leading eventually to tiredness, is most apparent. Pupils may begin to 'hold on' to the stick, forgetting trimmers completely. Again flying 'cross controls' in formation is a common occurrence. A pupil is asked by his instructor to get closer to the leading aircraft in the formation. To do so he lowers one wing using his aileron - but there is a part of him which does not want

to get closer, so unconsciously, almost involuntarily, he applies the opposite rudder. Certain obvious methods are employed to help the pupil to relax when in formation, obvious but nevertheless effective. Then, a tendency to 'check' high for landing may be due to a pupil's fear of hitting the ground, a reluctance to approach the ground in a steep attitude. But one of the worst things a pupil may do because of fear is to 'freeze on the controls' in a spin. It happened to a friend of mine. He was unable to wrench the controls from his pupil as the pupil was fairly tough. There was no question of knocking out the pupil as seating was in tandem. Now, this particular instructor happens to be a reasonably mature individual and quite cool in the air. He asked the pupil to read off the instruments, determine the height lost and so on. It is strange but the pupil did feel reassured or perhaps just distracted and his instructor was able to take over the controls and effect recovery. And that brings me to the other link in the chain. We have talked about pupils, now the instructors.

INSTRUCTORS

Due to the rapid post-partition expansion of our Air Force there has been an increasing demand for qualified flying instructors. I do not know if procedures have been changed, but up to a year ago, having done 18 months or 24 in a squadron, one usually got sent to the Flying Instructors School. A Q.F.I., it is said, must be young to impart dash to his pupils. We all agree, but factors such as flying ability and patience must be borne in mind during Q.F.I. selection. It is disheartening for a pupil to have an instructor whose demonstrations on most days are bad, whose example on the ground is a swagger, and in the air, a shout. 'Shouting in the air' in various forms and degrees is so common - almost an accepted institution in flying training - that it is worth while examining the causes.

Shouting

Imitation. With some of us it is 'the thing to do' because that is how we were taught by our own instructors. Because one's instructor happened to be a good pilot, he must be hero-worshipped and even his faults assimilated into one's own personality. This type of instructor will claim 'shouting' to be his individual technique or say it is essential for some pupils. But then what is to happen to such pupils when they have to fly on their own and learn by themselves, as later they will have to in squadrons.

Bad Demonstration. There are a few instructors who will shout at pupils to cover up on their own poor flying and ability to instruct.

Sit-back Tenseness. An instructor during a one hour sortie has controls for about five minutes. He has to watch and permit his pupil to fly and make mistakes. He may have to take up four pupils between six and twelve in the morning, observe them making the same mistakes. During formation flying a pupil is apt to 'give you a few babies' and on the circuit, particularly in landings, does all manner of 'dicey' things. On a navigation sortie he will sometimes be out in his course steering by the odd 20° or 30°. And all the time you have to let him learn by making mistakes, giving him reasons for his mistakes.

explaining. And all the time you are responsible for the pupil's safety and that of the aircraft. Only occasionally must you take over controls to show the pupil how. It does get on your nerves. Seems almost natural to shout or *do something* when you cannot. So you sit back and shout. You are thus able to 'give vent' and, also, you do not feel quite so impotent.

Riding Controls.

Empathy. This is one of the reasons for 'fiddling' with the controls when the pupil is flying. I have noticed it during aerobatics and particularly I.F. Empathy is 'feeling into a thing or person'. So, when you are observing a footballer or high jumper perform, your foot sometimes lifts. Similarly in a roll one might kick the rudder at the moment when the pupil omits to do it. This is sometimes useful and helps the pupils to realise just when to use a particular control.

Under-confidence. On the other hand an instructor who is not confident of his own ability to 'take over' in time or has little confidence in his pupil may continually ride the controls. This merely gives the pupil a poor impression of his instructor, he knows that he is not trusted and is not sure whether he is doing something by himself.

Now I have talked to you about flying training and some of the personal factors involved. To be sure there are others such as training programmes, punishments, food and amenities for Flight Cadets. As doctors on a station, especially in an Air Force College or at the Flying Instructors School or as Staff Officers in Training Command you are in a position to help improve matters. As I said at the start, the solutions might suggest themselves to you, you might be able to talk to instructors and pupils so as to help them, or at least I hope you will understand their problems a little better.