

## 12. The Important Question of Communications

### **Certainly It Has a Disadvantage**

Why not have the pilot report his information back on R.T.?

This method certainly seems very much more efficient, but it isn't always. The possibility of a pilot passing inaccurate information, perhaps dangerously misleading information, is greatly reduced by interrogation, the study of his reports and the elimination of possible mistakes. After the report has been studied and vetted for security it is broadcast to the formation that originally asked for the information.

This whole question of communications is of paramount importance in T.A.F.

In this country, the R.A.F. have enjoyed a communication system which is probably the best the world has ever seen. It was found in the African campaign that the R.A.F. operational system depended very largely on good communications.

Telephone lines are essential for operational control. Wireless links don't promote full efficiency. All moves forward by the joint headquarters in the Mediterranean had to resolve the Army's anxiety to keep up with their fighting troops and the R.A.F.'s anxiety for a comprehensive land-line for operating aircraft.

### **Maintained by Royal Signals Units**

Communications are maintained by R. Signals units known as Air Formation Signals. They construct, maintain, and operate all land-line communications between R.A.F. Headquarters and units. The signals network over which calls for support are passed is the responsibility of Air Support Signal Units ("ASSU"). The forward elements of ASSU are known as tentacles.

The forward tentacles of these units are used to send to Army Headquarters all requests and reports connected with air support. These forward tentacles may also report enemy air activity, location of crashed aircraft, "enemy and own," and give weather reports at different intervals.

Besides providing the communications the Army also shares its supply organisation with the T.A.F., except for local delivery to airfields, which is done by R.A.F. transport.

### **Supply : With Moral**

There is a story which emphasises the importance of keeping the R.A.F. supplied as quickly as the Army. Some petrol consigned for the R.A.F. was left on a North African dockside, its urgent priority being ignored in favour of Army supplies. The port was blitzed. Meanwhile, a powerful force of Spitfires, which could almost certainly have frustrated the attack, was grounded a few miles away from lack of the petrol left on the dockside.

# WAR

## The Man Overhead

ISSUED FORTNIGHTLY BY THE

**ARMY BUREAU OF  
CURRENT AFFAIRS**



### Not To Be Published

The information given in this publication is not to be communicated, either directly or indirectly, to the Press or to any person not holding an official position in His Majesty's Service.

**No. 67**

(Reprinted in Canada April, 1944, by permission of the Controller, His Majesty's Stationery Office).

**April 1st, 1944**

35M-4-44 (4148) H.Q. 70-44

## The Man Overhead

by Major ANTHONY COTTERELL

WAR Staff Writer

IT is at last possible to write an account of the Army aspect of air support without confining the material to fiction or conjecture. From the mire of misunderstanding and short supply there has finally emerged the practical tactical air force, with its fighters, fighter bombers, bombers and reconnaissance aircraft.

The 2nd Tactical Air Force is based largely on Mediterranean experience, but isn't exactly a replica of the machine developed in Africa. The air problem varies from theatre to theatre, from day to day, from hour to hour. It is no use trying to organise air support without leaving a very large margin for adjustment in the case of unexpected circumstances.

### I. First a few Fundamentals

#### This Week's Crop of Airfields

Suppose, for the sake of illustration, that it isn't economic to have fighters operating more than 60 miles ahead of the forward troops; and say that a bridgehead has been established 40 miles deep, from which leading troops are advancing at the rate of seven to eight miles a day. Then you must produce a new crop of airfields approximately once a week, if fighter support is to keep up with the rate of advance. And, as experience has shown that if there is no fighter support the movement may presently be in a different direction, this problem has to be solved.

Some measure of its importance is provided by the fact that in the African campaign it was said that 75 per cent. of objectives were airfields. It was by no means unknown to take an Infantry Brigade out of the line and set it to clearing potential sites.

#### But Naturally the Enemy Concentrated

On one occasion during the African campaign the 7th Armoured Division out-distanced their fighter support, and were without it for about a week. So the enemy had almost complete freedom to attack vehicles, and the division lost up to 12 a day. This may not seem much in an Armoured Division of say 4,000 vehicles, but naturally the enemy concentrated on petrol and water carriers.

In Tunisia there was almost no air support at first. Vehicles were shot up all the time, and every truck had to have a look-out to give

THE problems of air support have caused as much misunderstanding and consequent resentment as any inter-service growing pain. When the soldier is told to expect air support he naturally looks to see it in his area however many times he may have been warned that it isn't always evident. He also expects to see it applied to the particular tactical situation which may be pressing him at the moment. This pamphlet (based on material supplied by and used in the R.A.F. School of Army Co-operation) is designed to provide as thorough an explanation as possible of the difficulties which prevent this ideal state.

Army units are an integral part of the Tactical Air Force. All kinds of units, not only R.E., R. Signals, R.A.S.C. and Pioneers, may find themselves working directly for T.A.F. on a particular task. This is one more reason for your men to have a sound working knowledge of T.A.F. and may provide a useful starting point for your talk.

The article is written about the 2nd T.A.F. from the point of view of operations in Europe.

### If You Want to Live

AS they came to the village his section was still in front. By the corner of the first house something caught his eye and he swung his tommy-gun round in a flash and sent a stream of bullets tearing into a bush. "If Jerry's there," he thought, "he's had it," and this sudden feeling of power and deadliness gave him great confidence. Not for some days had he felt that jerking shudder of the gun against his body. Together still, they all moved on until the spatter of bullets near him made him fling himself down quickly behind a wall. He wriggled along the ground until he could see the cottage ahead where the fire was coming from. There was slight movement at a window and he took careful aim along the sights of the gun and fired. And then quickly he was behind the wall again.

Farther along the wall the corporal was giving some orders. They were to move forward when the grenades exploded. It all happened very quickly. The LMG opened up on the right, there were three cracking explosions ahead and suddenly the three of them were scrambling over the wall and running hard to the cottage. He fired at a figure running in his path and saw it pitch forward, both arms flung outward. Now he was against the cottage wall and running, doubled-up, round to the front of the house. The door was open and on a quick impulse he went straight in, all his senses alert, his mind and eye instantly seeing everything in front of him. In one flash, all of him sensed the grey uniform, the tense, urgent attitude of the figure immediately before him, the white face, the revolver pointing straight at him. His action was instantaneous, uncontrollable, instinctive. Nothing was quicker than the tensing of his body, nothing more instantaneous than the firm, sure squeeze of his finger on the trigger.

But only the roar of the exploding revolver shattered the air in the dim lit hall-way. And then he knew. In that one vivid moment, as his body felt the crushing suddenness of the heavy blow in his chest, as his eye saw the spitting red fire of the muzzle levelled at him, as his ear heard the crash of the explosion, so his mind instantly flashed that one awful message through all his brain and all his senses: "Empty mag."

REMEMBER: COUNT THE ROUNDS.

warning when it was necessary to jump into a ditch; with consequent delay to traffic and operations.

However, we all know that air support is necessary. What are not so well known are the difficulties of providing it.

## **2. Just What is an Airfield ?**

### **A Space 1,200 Yards Long**

There are certain minimum conditions which you must have to be able to operate your equipment. Let us consider just what an airfield consists of.

You need a space 1,200 yards long and 40 yards wide and suitable for landing in any weather. You need a considerable space of good level ground on either side, with no slope more than say 1 in 40. There must be 150 yards over-run at each end.

Obviously there must be no obstruction to the flight of an incoming aircraft. The approach funnel must be clear of all obstructions from a mile away. There must also be dispersal areas for anything up to 50 or 60 aircraft, with say 80 yards interval between each aircraft.

### **The Tired Pilot's Point of View**

The ideal, from the tired pilot's point of view, is a great billiard table. The best site you are likely to get is on high ground falling away gradually on all sides. This has the advantage of natural drainage and freedom from mist.

It isn't always easy to find. One apparently suitable area will be marshy, and therefore useless without prohibitively difficult drainage. Down in the valleys you get good dispersal, but difficult approaches; and ground which is liable to bog your aircraft.

Up on the Downs you get excellent dry sites, but pitted with shallow holes. This may involve filling in something like 4,000 cubic yards, a task which may take five days alone. Another site is perfectly fine, but it ends up in a wood, and means taking up 30 to 40 acres of oak trees.

### **But Makes Flying Control Difficult**

A convex airfield is good for drainage and popular with pilots, but makes flying control difficult because you can't see the whole field except from the centre.

You have to consider the pilot's mental reaction to a site. An obstacle such as a canal or a bank on the edge of an airfield is liable to make the pilot land a dangerously long way in from the edge.

The pilot wants the runway to show up clearly both by day and by night. The camouflage authorities have a different point of view. And as airfields receive special attention from the opposing air force concealment is the most important.

You don't want to find a site which some prominent object makes easily visible from the air, e.g., a river bend.

### **If an Ordinary Saloon Car**

Summing up the requirements of airfields, it is a pretty fair guide

to say that if more than one-third of the suggested strip is woodland you won't be able to clear it in time for Tactical Air Force requirements. One criterion sometimes applied is that if an ordinary four-wheeled saloon car can be driven along the proposed runway at 30 miles per hour without damage the surface is suitable for aircraft.

Naturally, a tremendously thorough reconnaissance has been, and is being, made of all potential Second Front airfield sites. This work of reconnaissance is not helped by the fact that in Western Europe on seven days out of ten you get a cloud base of under 3,000 feet, which means that you can't take the necessary vertical photographs.

## **3. The Airfield Construction Group**

### **More Than 1,000 Men in All**

So much for the general principles governing selection of airfield sites. Their construction is handled by special airfield construction groups, each under a C.R.E. with an R.A.F. Squadron Leader adviser. The group consists of a Headquarters, two R.E. road construction companies, and two Pioneer companies. More than 1,000 men in all. The method of operation is as follows:—

Reccé parties go ahead with the advance brigades. They have to think in terms of building an airfield which can, normally, be in use in eight days from the time they choose it, or in an emergency three days, or even less. For example, in the recently reported operations in Burma a landing strip for light aircraft was ready in five hours, and a strip for taking troop-carrying aircraft in 13 hours.

The reccé report is wirelessly to the C.R.E., who moves up with his Squadron Leader to look at the fields selected. You need something like three potential sites for every one which you use. An otherwise excellent site may be ruined because the ground is too wet for work to start without the danger of bogging the equipment and ruining the surface.

### **Cherry Trees can be Uprooted Easily**

How much wood or trees can be cleared away? For the strip itself you are unlikely to choose a site of which more than 25-33½ per cent. is woodland. Of course it depends on the woodland, e.g., cherry trees have very shallow roots and can be uprooted easily.

You can level unlevel ground to quite an extent. But the removal of earth to a depth of 2-3 feet over any considerable area is out of the question in rapid construction. On the other hand, you can accept a 5-6 feet cut on a tumulus 30 yards in diameter. Especially if there is a hole near by which itself needs to be filled and can be filled with the soil of the tumulus.

Every hole needs close examination. You may have to scrape out the soft stuff first and there may not be any conveniently available supply of hard stuff with which to fill in the hole. It makes a lot of difference if the hole is dry and if there is a quarry near by with a good road leading to it. It is necessary to translate the hole from

size into lorry-loads and distances, and availability of a round circuit, for transport.

### **Seeks Permission to Start Work**

Having O.K.'d the site, the C.R.E. seeks permission from the local commander to start work. While waiting he calls up the R.A.F. Regiment Commander. The Light A.A. and Heavy A.A. Battery recon parties come up, since the site is liable to attack as soon as work starts. The Air Formation Signals recon party come up. All these arrive, say, half-an-hour after the Colonel has reported the site to be satisfactory.

A notice board is put up and the Group Intelligence Officer establishes himself there to answer all questions. The Airfield Commander may come up at any time. Naturally, he wants a say in the disposition.

He probably has criticism of some kind to make about the administrative headquarters, the operations room, the interrogation or briefing room, or the living quarters, which should be near the airfield but not nearer than 500 yards.

They examine the lay-out. The strip is fixed as much into the prevailing winds as possible, for an airfield is likely to be unusable if there is a cross wind of more than 30 miles per hour.

## **4. Construction Starts**

### **With Some Remarkable Machinery**

The airfield construction group's remarkable machinery arrives. The angle-dozers start rubbing out hedges. The scrapers take away hummocks and fill in the hollows.

The auto patrol rules out the field, or lays out taxi tracks and dispersal areas (it is a six-wheeled drive grader).

The sheep's foot rollers stamp their way up and down the ground. This is a roller with about 200 studs like sheep's feet. The principle is that a sheep, or anything else, exerts much more pressure when standing on its four feet than when lying spread over the ground. Each of these machines has three operators R.E. The machines do 300-600 men's work, so it is worth having the staff to keep it busy.

They probably work the first night, with the ground illuminated by searchlights. The searchlight is on the warning net of the A.A. gunners, so it can be turned off if necessary.

### **Their Immediate Prospect isn't Particularly Inviting**

Meanwhile the Pioneer Company are marching up from the beach. Their immediate prospect is not a particularly inviting one. After, say, a 15-mile march from the beach they do at least a 12-hour working day, and possibly very much longer, until the airfield is finished and it is time to march off to make another one.

Laying the runway strip is their most important work. This is a matter of unrolling or fixing together the length of wire framework of which these temporary runways are built. I watched some Pioneers

doing this work at an emergency landing ground on the south coast. First they laid down strips of coconut matting transversely, and then strips of a light metal framework were bolted together on the top. One company of Pioneers can lay a 1,200 yards runway in 12 to 16 hours.

### **May Cost a Pilot his Life**

The work is straightforward, but it has to be perfect of its kind. One bad connection may cost a pilot his life.

A considerable part of their time, not to mention their energy, is spent in laying out stores. There may be as much as 600 tons of materials for one runway.

While the R.E. operators are preparing the track the Pioneers work on such jobs as grading roads: taking a muddy lane, cutting it to camber, and putting hard core down on it so that it drains itself and keeps going under heavy traffic.

They help move trees, top branches, and clear undergrowth. They spread soil. They construct French drains (3ft. deep) 1ft. wide and filled with boulders. Machines excavate the drains and Pioneers handle the boulders.

## **5. Airfields Vary**

### **Tend to be Close Together**

There is a tendency to group airfields fairly close together. This was found desirable in the Middle East to facilitate communications, and to enable defences to be on an area basis. Also suitable areas tend to be found fairly close together.

It may be wondered why there should be so much emphasis on building airfields when presumably the Germans have already done the job for us. But given any sort of warning it is easy for the enemy to plough up an airfield so thoroughly that it is quicker to lay a temporary strip than to repair the damage.

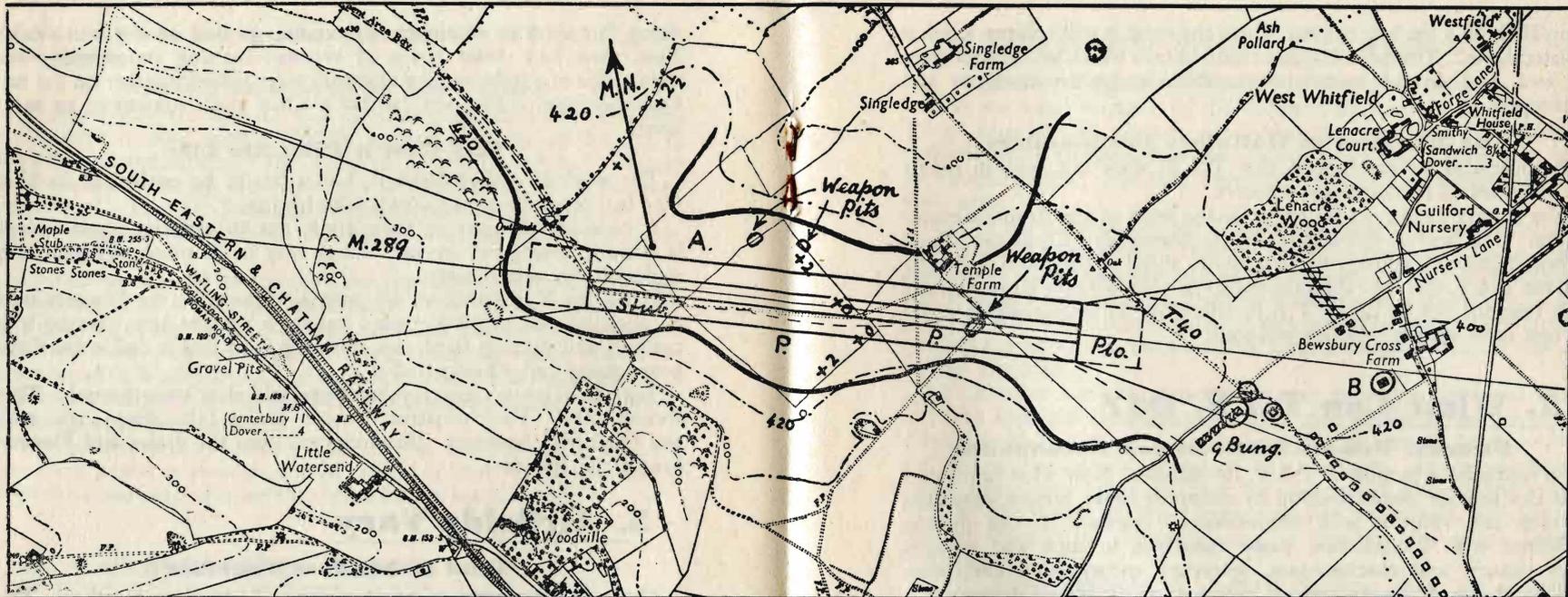
### **First the Belly-Landing Strip**

A belly-landing strip can be produced in a few hours, simply by three bulldozers ploughing up the hedges. This is good enough for emergency landing by aircraft in distress.

A slight advance on this is the refuelling and re-arming strip, which is a crude runway, with no facilities for staying the night. These strips are looked after by the R.A.F. Servicing Commandos.

These are advance maintenance parties, capable of refuelling, re-arming, and carrying out repairs, not taking more than one week. Each unit consists of 2 officers and 149 other ranks, distinguished by the Combined Operations flash on their shoulder. They can fight in support [of the R.A.F. Regiment, and usually accompany the A.A. and field squadrons of the R.A.F. Regiment to the strip.

The time it takes to construct an airfield must vary according to position. If no site is available or if the airfield has to be in use in a



Reproduced from Ordnance Survey Map.

comparatively short time, the C.R.E. asks the local commander if he is prepared to face a higher rate of casualties.

The airfield having been built, the aircraft arrive. There may be fighters, fighter-bombers, or recce. aircraft. Bombers don't have to be so far forward.

## 6. What Can't T.A.F. Do?

### Consider the Negative Side

Now, having got so far forward, what can the Tactical Air Force do, and what can't it do? Consider the negative side first:—

*Question:* Does T.A.F. provide close support for individual army units?

No, it does not. All experience has emphasised the necessity for centralised control of the aircraft. The higher and the fewer the people who have it in their power to decide whether a target is worth while or not, the better.

In the days when air support was largely theoretical the ideal was that every local commander should have a number of aircraft on call. This leads to useless dissipation of effort and to many impossible requests. To allocate aircraft to lower formations, except in special circumstances, is simply to fritter away your strength.

### Nearly Always to Prearranged Plan

*Question:* But the whole point of air support is, surely, that it can be summoned at a few minutes' notice?

*Site for a possible airfield. On the left there is a perfect approach, clear to the horizon over the whole funnel. M.289 is westerly bearing, i.e., 29 degrees off English prevailing winds of M.260. In the right-hand funnel there are nine bungalows, of which four are ringed for demolition. Some of the houses are to be demolished, e.g., the one marked B stands a little higher and from the strip cuts the skyline. When these demolitions are done a flying approach of 1 in 50 is secured.*

*In the map A=arable (young growing crops will push up track or even concrete, so that they must be uprooted). P (pasture) and stub (stubble) are good. If lucky, these surfaces can be used as they are. Plo (ploughed) is bad. The ground can't be touched at all if wet, because machines will bog and the ground get into such a state that when it dries twice the work needs to be done.*

A proportion of the air effort is kept for dealing with opportunity targets, but the rest will be used according to prearranged plan. This is necessitated by mechanical factors which are often not appreciated by the Army.

For instance, you cannot just whistle up medium bombers like taxis. It may take anything from two to four hours to get them going. The bomb load must be varied to suit the particular target. It is useless to

drop H.E. on a landing runway where the most it will achieve is a few isolated holes. You need fragmentation bombs which will scatter over an area, and do the maximum possible damage to machines and personnel.

### **The Mistakes of Battalion Commanders**

It must also be emphasised that T.A.F. does not exist to repair the mistakes of battalion commanders.

Nor should its aircraft be set to do the work of the Reconnaissance Corps. The general estimate is that Reconnaissance Corps provide all information about country up to 20 miles ahead of the forward troops, and the T.A.F. take over from there. Even when we have air superiority it is essential not to direct T.A.F. efforts on to targets which could be best dealt with by military weapons.

## **7. What Can T.A.F. Do?**

### **Destroy, Demoralise, Conceal, Reconnoitre**

So much for a picture of T.A.F. limitations. Now what can it do?

It can provide demoralisation by dropping heavy bombs, casualties to men and vehicles with fragmentation bombs. It can destroy buildings with incendiaries, cause casualties to men and vehicles with cannon and machine-gun, interrupt enemy communications, and by means of smoke conceal preparations or secure deception.

Heavy bombers of the strategic bomber force, and the tactical bomber force acting in a strategic role, give indirect support as they attack their targets.

Reconnaissance is usually divided into (a) strategic and (b) tactical. Examples of strategical reconnaissance would be reports on traffic at disembarkation ports, traffic and movement in back areas, results of bombing and information useful in selecting future bombing targets.

Tactical reconnaissance provides information of enemy movements, reinforcements, concentrations, gives positions of battery positions, etc. It may also be needed to locate our own forward troops' positions (contact reconnaissance).

### **Do They have Definite Areas?**

**Question :** Do the various squadrons have definite areas of the front allotted to them?

No, they do not. This pre-war patrol technique was too vulnerable and couldn't cope with the enormous areas which must be covered. Nowadays reconnaissance aircraft are sent out to get definite information, i.e., "mission recce."

Roughly speaking, you can say that tac/R provides information on anything which our own troops may come up against in the next 24 hours. In the case of an army, with its wider perspectives, anything up to 48 hours may be considered to be tactical reconnaissance. Beyond that it becomes strategical reconnaissance.

## **8. Here are Some Examples**

### **The Different Kinds of Air Support**

Here are some examples of the different kinds of air support:—

(1) After the El Alamein break-through, when the two infantry divisions were through Rommel concentrated two Panzer divisions for counter-attack. But they were spotted by air reconnaissance and dealt with.

(2) In the latter part of the Tunisian campaign the sixth armoured division were to be pushed through a certain position. About a day beforehand reconnaissance photographs showed heavy and hitherto unsuspected concentrations of enemy artillery: 80 anti-tank guns and 30 to 40 field and medium guns. Every available bomber was turned on to the guns and in the event the sixth armoured division was not unduly troubled.

(3) Another example of direct support was when light and heavy bombers kept the Germans awake for two nights before an attack. Then for two to two and a half hours before the attack light bombers and fighter bombers concentrated on the target. In 412 sorties 11 pilots were lost; much military life was saved because the enemy were so dazed that they lost their first fine instinct of self-defence. (But at Cassino the Germans went on fighting after much heavier bombing.)

(4) A good example of indirect support was the German immobilisation of the French railway system during the drive of their armoured formations to the coast in May, 1940. It stopped the northward movement of the forces which were seeking to sever German supply lines.

## **9. Lecture by a Group Captain**

### **Under a Sort of Anaesthetic**

The battle of El Hamma is often quoted as a first-class example of direct support.

An attack which normally would have taken 12 to 14 days to put in was mounted in a matter of 48 hours, because we had complete air support. This air activity and superiority put the enemy under a sort of anaesthetic. Later it turned to panic. It didn't do much material damage but plenty psychologically.

It worked like this (according to a group captain lately returned from the Mediterranean and lecturing at a recent course which I attended at the R.A.F. School of Army Co-operation):—

At 2.45 p.m. all medium bombers were directed to just in front of our forward troops.

At 3 p.m. a creeping barrage started, behind which came troops and armour. In front of the creeping barrage fighter bombers operated, dive bombing and low strafing.

An armoured division, bombers and fighter bombers went in together. All this time there was Spitfire cover over the area to

cope with the Germans. But there were no Germans, except three M.E.109's, which came over at 6.15 p.m. when the battle was all over. The Germans had been attacking useless targets a few hundred miles away. A lot of aircraft were lost, but not half as many as were expected to be lost.

Air Force casualties were reported at 11 per cent., but this figure was later reduced to 6 per cent. by the large number of pilots who turned up.

### **The Bridge is Usually Still There**

The Group Captain went on to make the following points:—

“Fighters are better than bombers for dealing with transport.”

“Going for ships, bombers are more useful. One 500lb. bomb, well in the middle of any ship up to 5,000 tons, will usually do the trick, or two hits anywhere.”

“It is not much use to send fighter-bombers to bomb a bridge, for when all the smoke and shouting has died down, the bridge is usually still there. Bridges are very tough targets.”

“In Africa we finally concentrated on enemy transport.”

“If you cut a railway line a little break can usually be repaired in two or three hours. Whereas if you hit an embankment it is likely that trains must run slowly over it for something like two months.”

## **10. How is Air Support Planned ?**

### **Their Caravans are Very Close**

The air commander acts jointly with the army commander. Insistence is made of their sharing the same living and working quarters. At night they pitch their caravan very close to each other.

They hold a joint planning conference about 9.30 p.m. each evening, by which time reports on the day's operations may be expected to be reasonably complete. At this conference they decide what is to happen to-morrow.

Now air support is subject to considerable limitations. For those who prefer to consider any problem in terms of sporting parallel, the R.A.F. commander's position may be compared to that of a golfer who has a limited number of shots (aircraft sorties) to make with a limited variety of clubs (fighters, fighter-bombers, etc.).

### **Now What is a Sortie ?**

A sortie is one operational flight by one aircraft. If a weaver (that is a covering aircraft) is sent to protect a recce aircraft, it counts as two sorties. In other words, if a weaver is sent with every recce aircraft—and sometimes three may be sent—only half the number of jobs can be done during a day.

Another not inconsiderable factor is that only 60 per cent. of the original allotment of aircraft are likely to be serviceable on any one day, though this may be increased for special occasions, given the opportunity to make arrangements beforehand.

There are so many delicate things to go wrong in an aircraft. In a

car, if anything gets loose, you let it rattle. In an aircraft this wouldn't be advisable. Not only the extremely complicated engine, but all moving surfaces, must be perfect.

Then, of course, the weather, to which fighters especially are very susceptible. A reconnaissance-fighter really needs to be able to see and identify its mark for at least a few miles.

### **Often More Vulnerable on the Map**

In the opening stages of an attack air support is likely to be concentrated against enemy airfields and other targets which affect the fight for air superiority. Until this is obtained it is no use expecting the air effort to be concentrated in direct support for the Army. First and foremost, they must gain local air supremacy.

When the offensive starts, air support switches to enemy headquarters and signal sections, supply dumps, transport, A.F.V.'s in harbour or concentrations of M.T.

But it must be borne in mind that such targets are often much more vulnerable on the map than in fact. Troops or vehicles dug in or dispersed are often not worth attacking. The results obtained don't measure up to the effort made.

### **The Best Targets are as Follows**

In general it may be said that best T.A.F. targets are as follows:—

- (a) M.T. to disorganise L. of C. and supplies.
- (b) Troop concentration areas by day and night to prevent sleep and lower morale, though the killing value of this may be small.
- (c) Tanks—with tank-busting weapons.
- (d) Thickening up of an artillery barrage.

Besides this, of course, there is reconnaissance.

## **11. Recce Mission**

First, what are the advantages and weaknesses of air reconnaissance, as opposed to ground reconnaissance ?

On the ground you get a more detailed report. You can stop and pin-point a position, which you can't at 300 miles per hour. But you are limited to the front-line and infiltration, whereas the aircraft can fly right over, have a look and take pictures.

On the ground you can capture prisoners and identify units. On the other hand, the air pictures can show positions which ground reconnaissance might miss. Consider a typical recce mission in detail.

### **These A.L.O.s Plan, Brief, Interrogate**

The Army makes its demands on the Air Force through a system of Air Liaison Officers (Captains and Majors), who are distributed through T.A.F. down to individual airfields.

These A.L.O.s brief the pilots, plan their photographic marks, work out their start and finish points. A Canadian A.L.O. showed me a list of rules to which he worked. Here are some of them:—

1. Don't keep pilots waiting.

2. Don't allow pilots to butt in during briefing.
3. Briefing should be smooth and continuous.
4. Flak areas must be given.

### Demands in the Following Terms

The Army makes tac/R demands in the following terms:—

“ Recce area MORPETH ( $\frac{1}{4}$  inch to 1 mile, sheet 1) U.6o and main road from MORPETH to the S.W. for sight of MET. A division is believed to be in this area and will probably move in a S.W. direction.”

At headquarters of the reconnaissance wing to whom the job is allocated, they decide how the task is to be broken up (see map on page iii).

Obviously the enemy isn't going to take a division through Newcastle or across the wider parts of the Tyne. He will have to come west. By this sort of elimination they estimate the route the enemy is most likely to use, then send out an operation order (known in the R.A.F. as Form D) to the squadron concerned. The map shows route taken on this particular mission, which occurred in a recent exercise.

The aircraft can be airborne within 20 minutes of the time the A.L.O. receives the demand, though if photographic reconnaissance is required it will take longer.

### What Heights Do They Fly At ?

Low recce may be done at tree-top height, high recce at 6,000ft. (out of the worst of light flak) or at cloud-base. It depends on how much detailed information is needed, how strong the air and ground opposition is likely to be, and the cloud position.

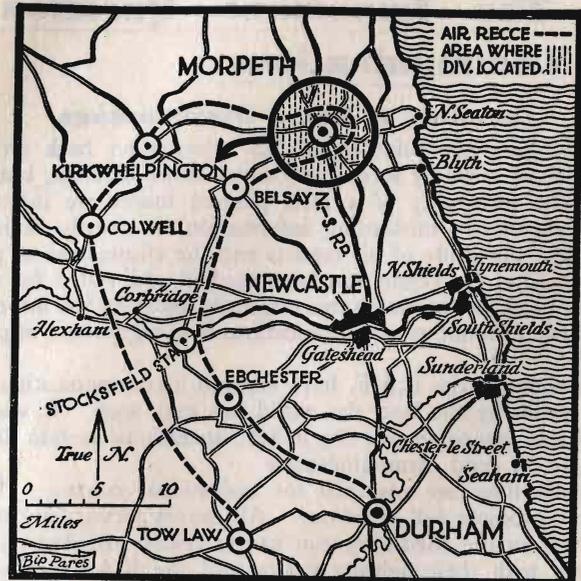
Both levels have their flying problems. When a pilot is flying at a low level, accurate navigation in a single seater aircraft is difficult. The air situation, the weather, and the countryside all have to be constantly watched. It is not easy for him both to sight his target and keep flying straight and level.

From a different angle the same difficulties apply when doing high-level reconnaissance. Things are much easier in aircraft which carry a navigator. Sighting is likely to be much more accurate (but so is the enemy's reaction. The larger aircraft is easier to see in the air, and to hit).

This fighter recce work is extremely strenuous. Remember it may involve flying at low level over enemy territory, following a feature which may be a road or a river, map-reading his way, taking pictures as opportune, making notes about enemy movements. And the pilot may also have to pass a message back or speak to accompanying aircraft, but always on top of what is often considered a whole-time job, that is, piloting an aircraft and watching for enemy aircraft.

### Like a Doctor Making a Diagnosis

On return, the A.L.O. interrogates. Like a doctor making a diagnosis, he must be careful not to put suggestions in the pilot's mind. The interrogation may go something like this:—



Pilot (indicating on map): There were a lot of tanks stretched from here to here.

A.L.O.: How far was it between tanks ?

Pilot: Hell, I don't know. How can I tell from 6,000ft. ?

A.L.O.: Was it more than 3 tank lengths ?

Pilot: About 5.

A.L.O.: Exactly where was the head of the column ?

Pilot: About here (indicating on map).

A.L.O.: They were moving west ?

Pilot: That's right.

A.L.O.: Where was the tail ?

Pilot: About here (pin-pointing).

A.L.O.: How fast were they going ?

Pilot: About 15 miles an hour.

A.L.O.: What kind of tanks ?

Pilot: How do I know? Might have been P.Z.IVs.

A.L.O.: Right, there's a corner. Did you get a look down that road ?

Pilot: Yes.

A.L.O.: See any tanks ?

Pilot: No.

A.L.O.: Did you look up the turning to the right here, to the north ?

Pilot: Yes.

A.L.O.: Any tanks or M.T.s up there ?

Pilot: Couldn't be sure. Might have been two vehicles parked along the side of the road there.