RAF TRANSPORT COMMAND REVIEW

No. 1 SEPTEMBER 1945

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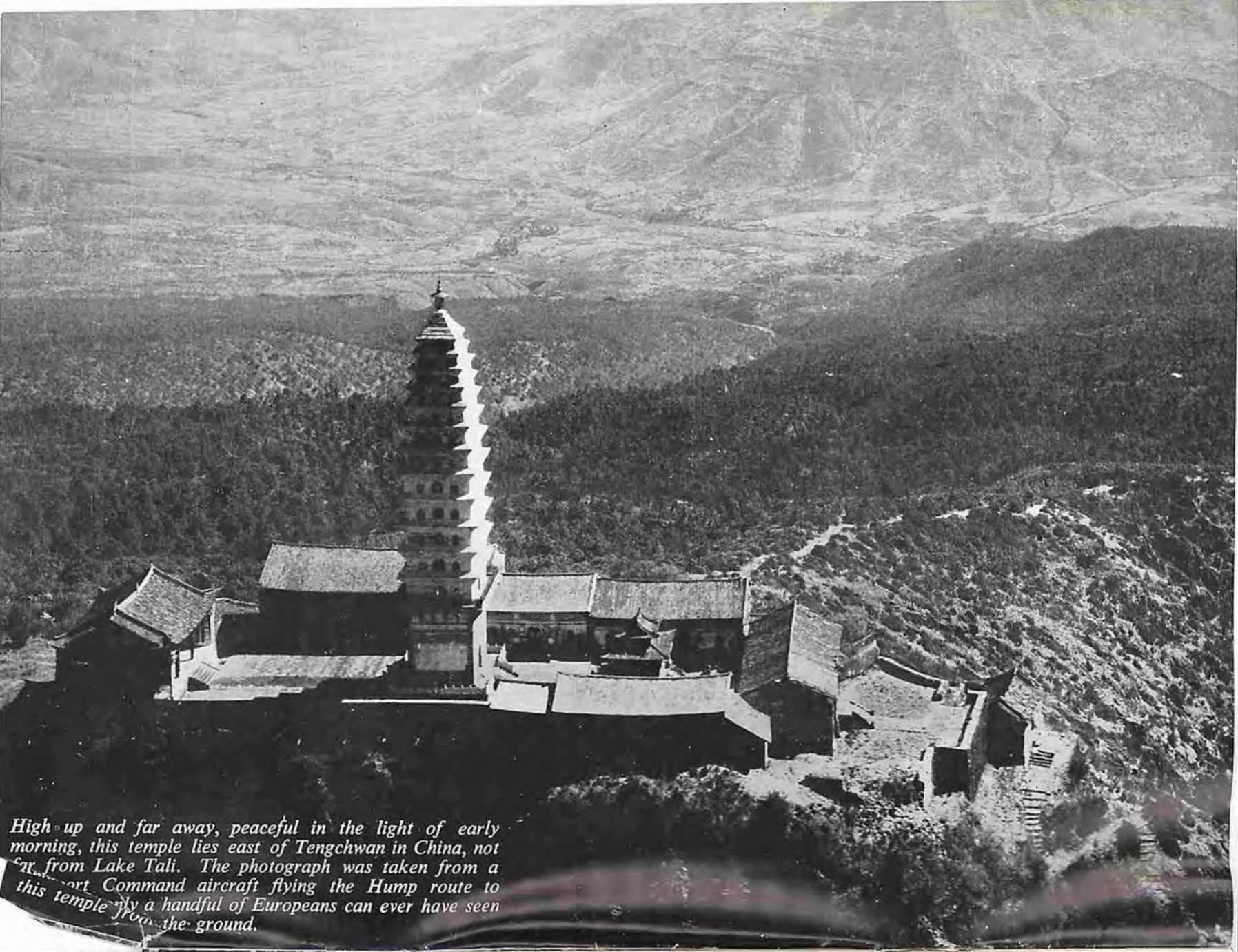

High up and far away, peaceful in the light of early morning, this temple lies east of Tengchwan in China, not far from Lake Tali. The photograph was taken from a Transport Command aircraft flying the Hump route to this temple [illegible] a handful of Europeans can ever have seen from the ground.

TRANSPORT COMMAND REVIEW

ISSUED BY HQ TRANSPORT COMMAND
ROYAL AIR FORCE

No 1 SEPTEMBER 1945

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Front Cover: Yorks at Malta (F/Lt. Deven).

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FOREWORD

AIR MARSHAL THE HON. SIR RALPH COCHRANE, K.B.E., C.B., A.F.C.
Air Officer Commanding in Chief, Transport Command, R.A.F.

TRANSPORT is a key both to war and peace, and we in Transport Command are fortunate in our task of developing and operating the transport resources of the Royal Air Force.

In the Battle of Britain, the Battle of the Atlantic, and the Battle of Germany, the Royal Air Force built up a reputation for air fighting, air warfare at sea, and for bombing, which is recognised throughout the world. It is now our duty to earn similar prestige for the Royal Air Force in the field of Air Transport; so that in airborne operations, in the support of land and sea forces and on the trunk and ferry routes, we establish a reputation for skill and safety, and thus gain the confidence of all who look to us to meet their many requirements.

Our ability to reach these standards depends upon each individual, upon those who plan and administer as well as upon those who fly. Without organised routes and the resources and ingenuity of the engineering, equipment and signals services, and the staffs who regulate and handle traffic, we could achieve nothing. In all these matters we draw strength not only from our own Command, but also from the RAF Commands through whose territories we pass, notably the Commands in the Middle East and in South-east Asia. The air transport services of the RAF are therefore in every sense a combined venture, although upon us rests the responsibility of operation, entailing the highest standards of discipline and the most meticulous attention to detail.

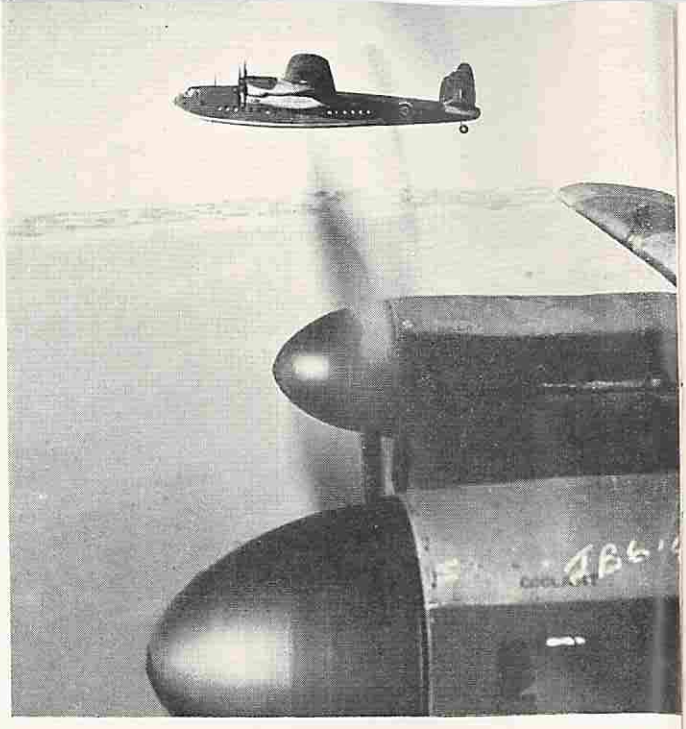
To all those serving in Transport Command throughout the world I send my good wishes and an assurance that their work has been invaluable in the final rounding-up of the enemy, and that the work still to be done will be the means whereby men can be brought home from all parts of the world.

Let our motto be that we will fly anywhere, carry anything, and let no difficulty prevent us from fulfilling our task.

R. A. Cochrane

Air Marshal.

THE FUNCTIONS AND ORGANISATION of Transport Command



Transport Command is new, but already it has formations in five continents and its aircraft encircle the world. The Command, facing great and complex tasks, is still expanding rapidly.
In this article Group Captain P. S. Foss, O.B.E., Commandant of the School of Air Transport, sketches the history of military air transport and outlines the present functions of the Command.

NEWEST of all the major commands of the Royal Air Force, and now the largest, Transport Command is still far from being comprehensively understood not only among its sister commands but also within its own formations. That must be regarded as something inevitable. It has grown so rapidly since its formation on March 25, 1943, and there are so many facets to its work, that only the oldest "airtransporteers" can have managed to keep in touch with all the changes.

Although the tradition of military air transport is as old as the Air Force, even older, it has not until recently been appreciated that it is as vital to the prosecution of a modern war as bombing, ocean reconnaissance, ground straffing or air-to-air combat.

Its earlier efforts appeared to be less arresting, less spectacular, less easily evaluated. Then came the great victories of the Western Desert and Burma. These broadened the whole conception of the employment of air transport.

In the desert, air transport gave the tactical squadrons the mobility which kept them constantly with the battle. In Burma, whole armies depended entirely for every bite of food, every round of ammunition upon supplies from the air; in March the Burma transport force announced that they had carried nearly 100,000 short tons in that one month for the victors of Rangoon and Arakan. To-day military air transport is accepted as being as decisive as battleships or bombers.

Transport Command is responsible for the British component in the huge Allied air-lift potential now deployed along the lines of communication and in the occupied territories. Before the broad functions and organisation of the Command can be explained, it is necessary to have some background not only of the tradition of air transport in the RAF, but also some history of the formations that were brought together to form Transport Command.

TRADITION BEGUN IN 1916

From the very earliest days the RFC, and later the RAF, have built up a tradition of air transport, particularly in the overseas commands. In 1916, for example, two Farman aircraft were employed to drop supplies on besieged Kut. They dropped more than 1,300 lbs. per day in spite of fierce Turkish opposition. Even so it was not enough and the garrison was forced to surrender.

Later, in 1918, at Deraa in Transjordan, Lawrence of Arabia achieved a signal victory over the Turks through the use of close fighter support. This was only possible because a twin-engined Handley Page was employed to convey the ground personnel, ammunition and petrol required by the three fighters employed.

Again, during the break through the Hindenburg line, the RAF provided support which included the dropping of supplies and ammunition to isolated troops on a number of occasions.

Between the wars the RAF was constantly employed in supporting operations in the field, in pioneering air routes, and in many other tasks. Its Bomber/

Transport squadrons were the most intensively employed of all the squadrons in the overseas commands. The campaigns in which transport aircraft were employed are too numerous to mention. It must suffice to describe three distinctive operations which illustrate the employment of air transport in the military role during this period.

During the winter of 1928-29 a revolution broke out at Kabul in Afghanistan and the British Minister requested air communication and evacuation for the foreign personnel there. At first DH9A's provided communication while the one bomber/transport aircraft in India—an Hinaidi, piloted by F/Lt. Fressanges (now AOC 47 Group)—began evacuation. Within a week Victorias of No. 70 Squadron, Iraq, began to arrive and the evacuation, despite heavy snow storms, was speeded up.

In 1931 a riot occurred in Cyprus and it was decided to airtransport a detachment of the Royal Regiment from Egypt to Cyprus, staging in Palestine *en route*. There was no landing ground in Cyprus at that time, and an urgent telegram was sent to a Sgt. Pilot, of 216 Squadron, who was honeymooning in the island, instructing him to select a suitable field and light a bonfire by which aircraft could land. The whole force was delivered safely; order was restored—and the honeymoon resumed.

An important task assigned to the RAF in peace time was the development of strategic air routes. The routes from Middle East to Iraq, India, Singapore and Australia and from Middle East to West Africa and to South Africa, were largely developed by the RAF. Once the air routes were developed they were handed over to Civil Aviation.

SECOND WORLD WAR

In the years that preceded the second world war other countries were experimenting with the potentialities of air transport. The Russians were seen to drop a whole division of men by parachute in 1936. In Germany glider training was conducted intensively and a fleet of Ju.52 military transport aircraft was being built.

When war seemed inevitable, the RAF was forced to concentrate its energies first on the fighter and then on the bomber. The mobilisation of civil transport aircraft for the support of the Services was undertaken by the Civil Aviation Department.

Immediately after the declaration of war there was much carrying to do, redeploying squadrons both into France and about the Middle East. When France fell, civil transport aircraft were employed not only to evacuate persons, but even to attempt to drop supplies to the besieged garrison at Calais—a very gallant tale of an impossible task. Then Britain stood alone and all our effort was concentrated on defence.

Meanwhile, in the Middle East, our two Bomber/Transport squadrons were directed to their war role—bombing. No. 70 Squadron was re-equipped with Wellingtons. No. 216 Squadron went to war in its Bombays and Valentias. But it was soon found that in the vast expanse of the Middle East we could not do without air transport to maintain our essential lines of communication. The carrying of ferry crews back from Cairo to Takoradi, West Africa, where single and twin-engined aircraft were erected, absorbed most of our civil and military transport resources. At the same time the Army in the field required quick communications which only air transport could provide. The rising in Iraq, in 1941, necessitated the flying in of reinforcements from India by 31 Squadron, and from the Middle East by 216 Squadron. No. 216 Squadron and a detachment of 31 Squadron also gave support to our forces in the Western Desert.

It was in the Western Desert that the lessons learned in peacetime were first applied to wartime operations. For the final break through by the Eighth Army from El Alamein, air transport was employed to keep the Desert Air Force mobile. The returning transport aircraft brought back more than 16,000 casualties. During the evacuation from Burma many hundreds of people were flown out in No. 31 Squadron's DC2s, and troops and civilians, struggling over the mountains, were kept alive by supplies dropped by this Squadron. In UK some 30 Fighter squadrons were concentrated in SE England to support the Dieppe operation carried out by 17 Handley Page "Sparrows" of No. 271 Squadron. These were the beginnings of what we now know as Transport Support.

The demand for more aircraft from the overseas theatres was insistent. From UK aircraft began to flow to the Middle East and to India. Before long a route organisation and a delivery organisation began to shape out of the attenuated resources of the overseas garrisons. Great initiative was shown and much hard and unpleasant work done, while on some routes casualties were severe; but soon the flow of aircraft across the world began to compare with the numbers of aircraft being sortied each day by one of our great Home Commands. In 1942, 44 Group, Gloucester, despatched 1,200 aircraft in less than a fortnight to North Africa and Gibraltar in support of the Allied Armies liberating Morocco and Algeria.

THE ATLANTIC BRIDGE

From Canada "cash and carry" aircraft had to be brought to the theatre of operations as quickly as possible. Shipping was at a premium and was very slow, so it was decided to fly them across the Atlantic and the Pacific. The Canadian Pacific Railway, on behalf of the MAP, set up an organisation to ferry aircraft overseas and the first deliveries across the Atlantic were made in 1940. In July, 1941, a RAF organisation called Ferry Command took over from MAP's "Atfero," absorbing many of the civilian aircrew, ground personnel and advisers. The trickle of aircraft in 1940 swelled to more than 300 aircraft per month, delivered to all parts of the world, in 1943. When the USAAF Air Transport Command first operated in 1942, Ferry Command gave them considerable assistance in ferrying aircraft to Australia, the Philippines and across the South Atlantic to the Middle

East. During this time Ferry Command also began to operate return ferry services with Liberators and Flying Boats almost round the world.

TRANSPORT COMMAND HQ

It became obvious that this world-wide organisation, the increasing numbers of transport aircraft becoming available, could not be co-ordinated and managed by one small branch of Air Ministry, and so Transport Command Headquarters was formed on March 25, 1943, to draw together all the various formations dealing with air transport, delivery and air routes, and to standardise and co-ordinate the whole. It will be appreciated that because of the different circumstances in which each of the various formations was set up, and the different tasks they were given, that the establishments, methods, experience and even the language of each differed fundamentally. **It was a very great task that Transport Command HQ had to do in bringing all into line and pioneering an entirely new conception of command, control and administration.**

Since the formation of the Command HQ when it took over 44 Group and 45 (Atlantic Transport) Group (formerly Ferry Command, Canada), the Command has expanded to 12 Groups and 3 independent Wings. Its manpower is approximately twelve times as great. Hitherto, the Air Force overseas was divided into geographical regions such as Middle East Command. Now Transport Command proposed to operate aircraft and command units stretching across the world and passing through many of these regions. Furthermore, the Command, while employing RAF resources, was out to serve all the Services, military and civil, equally. It was a "common carrier." Its operations were strategical on the lines of communication across the world, and tactical in support of battles proceeding in the various theatres. Because of the mobility of air transport and the need to concentrate experience, training and doctrine, the responsibility for the provision and efficiency of all Transport resources, including tactical Transport forces, was laid upon the AOC-in-C Transport Command. The direction of day-to-day operations was delegated to the Theatre Commander.

The responsibilities of Transport Command can best be divided under the following five headings, which are set out in the order of the numbers of personnel employed on each:—

Air Routes Operations.
Transport Operations.
Flight Delivery Operations.
Development Operations.
Liaison Operations.

AIR ROUTE OPERATIONS

Between the centres of Government and Industry and the theatres of operations, Transport Command is responsible for providing air routes. These "air highways" are designed to carry not only the air transport traffic but also the movements of squadrons being redeployed and aircraft being delivered. They consist of a series of airfields upon which are placed Staging Post Units who are responsible for receiving, servicing, housing, feeding, briefing and despatching all transient aircraft. These SPs are linked together by a considerable communications system, both W/T and landline, a complex meteorological organisation, a world-wide flying control organisation and a network of navigational aids and assistance. Regardless of how few aircraft Transport Command may deploy on a particular section of an air route, that route must be kept open and ready to handle the strategic movements of the RAF.

The air routes are operated from day to day by regional (Static) Wings which are normally placed under Group Headquarters. It is the Transport Wing's responsibility to give service to all aircraft proceeding along the route regardless of their "ownership," acting as the agent of the AOC commanding the aircraft concerned.

TRANSPORT OPERATIONS

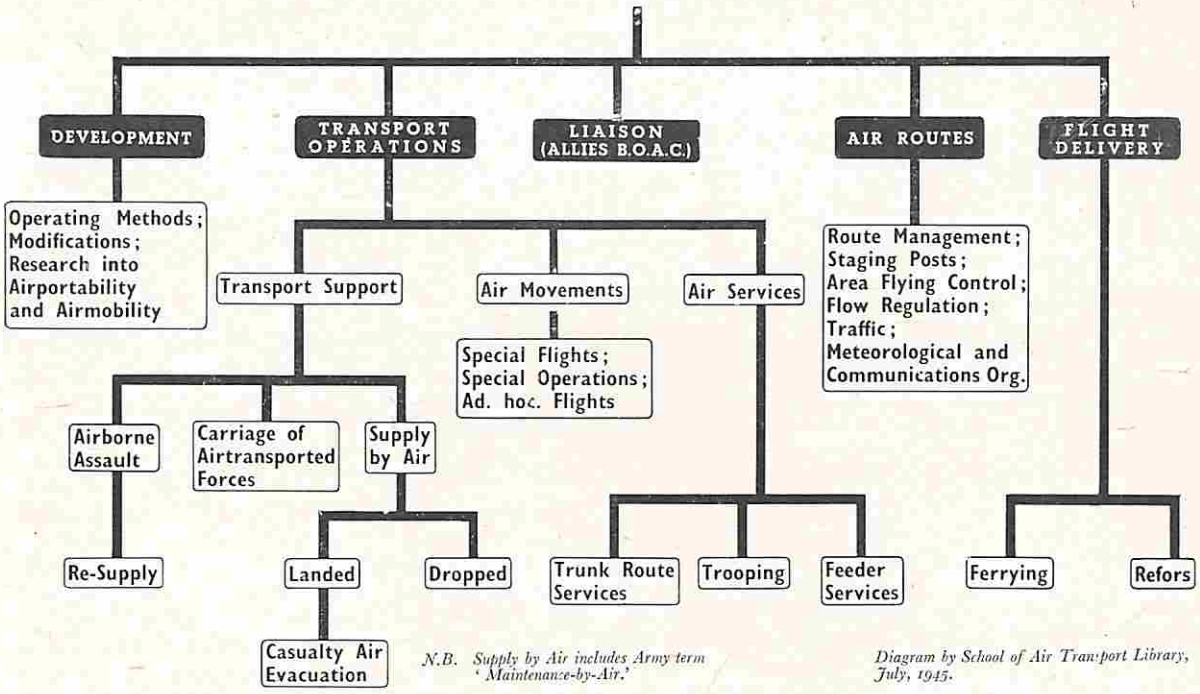
The Command's Transport squadrons are broadly divided between two roles—operations in support of battles, and operations on air routes. The operations in support of battles are called Transport Support. The Command's aim is to keep its squadrons as flexible as possible so that they can be switched between roles, but for the most intensive form of air route operations—called Air Services—this is almost impossible because of the special organisation required.

The force provided by Transport Command to give direct support in battle, includes not only Transport squadrons but also Mobile Staging Posts, Casualty Air Evacuation Units, Mobile Signals Units and many other units which are essential to provide the ground organisation without which transport aircraft cannot be efficiently operated. Broadly speaking, the Transport Support force supports the Army; in the Far East it was the first line of supply. The Transport Support force also carries a spearhead of the Army in Airborne Assault and its immediate Resupply. The specialist troops of the spearhead are called Airborne Forces and comprise both paratroops and gliderborne troops.

Once the battle is opened the fetching and carrying of supplies and personnel between the rear area, where are Replacement Units and depôts, and the forward strips or dropping zones, is called Supply by Air. Where the Army force is entirely supported in this way the Army calls it Maintenance by Air. On the rearward flights the first priority is normally given to evacuating casualties.

From time to time complete units have to be moved within the battle area. These units, which have either special airtransportable equipment or reduced scales of equipment, are normally loaded in such a way that when they disembark they are in the right order and have their proper equipment to begin their task immediately. This is called the movement of an Airtransported Force.

ANALYSIS OF THE FUNCTIONS OF TRANSPORT COMMAND



N.B. Supply by Air includes Army term 'Maintenance-by-Air.'

Diagram by School of Air Transport Library, July, 1945.

For each of the above aspects of Transport Support there is a different requirement as to numbers of aircraft and their employment. For Airborne Assault the requirement is "the biggest possible single lift" so that the greatest number of troops and equipment can be delivered in the shortest possible time. At the same time there will probably be a resupply of stores required as soon after the drop as possible. The Airborne Assault is normally planned by specialist Headquarters (38 Group and 238 Group) who work in close collaboration with the Army. Specialist squadrons convey the pathfinders and lead the assault. For Supply by Air the major requirement is a good base organisation and a good forward strip turnround organisation, coupled with first class communications between them. For Supply by Air intensity of operations is aimed at and aircraft proceed one after another in order to allow the ground organisation time to unload and clear before the next aircraft or formation arrives. The same rules apply for dropping on a dropping zone. For the movement of Airtransported Forces a considerable amount of pre-planning is required to make up the loads. The lift of the whole force is usually done at one time so that after disemplaning the troops can be quickly got into action.

Transport Command is responsible for maintaining the air lines of communication between centres of supply and industry and the Forward Area where are the dumps and replacement depots. It is also responsible for maintaining the lines of communication between the dumps and the Transport Support units. To do this it operates transport aircraft in one of two ways, by Air Services or by Air Movements.

AIR SERVICES

Air Services are the operation of Transport aircraft to a schedule or time-table to convey passengers, freight and mail. The plan or schedule is devised to obtain the maximum intensity of operations from each transport aircraft within the limitations imposed by maintenance, route facilities and a multitude of other factors. Air Services are divided into:—

Trunk Air Services
Trooping
Feeder Services

Trunk Air Services are the most intensive type of Transport operations along the trunk air routes. The trunk air routes are the most highly developed of Transport Command's routes. In Trunk Air Services loads are normally put aboard at the departure base and remain unchanged until the end of the journey. To speed the services a special system of progressive maintenance is employed whereby elements of the normal inspections are carried out each time the aircraft lands. Slip crews are deployed along the route to take on the aircraft while the preceding crew rests at the end of each stage. This type of operation is a new one to the Royal Air Force.

Trooping is the conveying of personnel of all

Services between theatres of war, largely employing converted Bomber aircraft. The operation is the same as Trunk Air Services except that the handling of the passengers differs, *e.g.* the passengers are slipped *en route*, in order to rest, in the same way as the aircrew.

Feeder Services are operated within a theatre to maintain its essential lines of communication. These services are liable to be varied frequently to meet the changing battle conditions and are normally over air routes which are not so highly developed. Furthermore, because theatres are limited in size, the aircraft can usually cover the routes in less than twenty-four hours and so can operate from a permanent base instead of spreading their maintenance across the world. Finally, Feeder Services normally expect to pick up and put down loads along their routes and the traffic operating instructions have to be arranged accordingly.

AIR MOVEMENTS

All flights by Transport aircraft other than those covered by the term Air Services and Transport Support are called Air Movements. Certain Air Movements are designated Special Flights and Special Operations. Special Flights are Air Movements where the nature of the load or task to be carried out arouses special attention or requires special instructions. A Special Operation is one in which either a number of aircraft is involved or a single aircraft needs special arrangements apart from the aircraft's own operation, as for instance, where it is necessary to form a special Staging Post and position it for a Special Flight.

FLIGHT DELIVERY

Delivery of aircraft is the task around which the older formations of Transport Command have been built. It is Transport Command's responsibility to flight-deliver all aircraft between theatres of operations and within certain of the theatres. This necessitates a considerable organisation which includes Aircraft Preparation Units, which receive aircraft, inspect them, fit ferrying and other items and makes them ready for the task; Ferrying Units which provide the aircrew to move the aircraft and train them accordingly; Despatch Units and Staging Posts to see delivery aircraft on their way.

Flight Delivery takes two forms, Ferrying and Reinforcement, usually known as Refors. These terms apply primarily to the crew. A ferry crew is posted to a Ferry Unit and delivers aircraft as required, returning to its unit after each delivery. The Reinforcement crew, usually from outside the Command, is provided specially for the one flight, is then trained and husbanded on its way to an overseas theatre, where it is absorbed into that theatre.

DEVELOPMENT

Fourth of the functions of Transport Command is Development. Under this heading come all the research activities of specialist units set up for the purpose, and their field is wide and still largely unexplored. They include:—

Conversions of aircraft built for other purposes (*e.g.* bombers) into transport aircraft;

Perfecting new flying techniques and servicing and operating methods;

Research into air-portability and air-mobility, breaking down bulky equipment (trucks, bulldozers, fighters) into aircraft loads; packaging, lashing, etc.

Combined research, with the Army, into methods and requirements for Transport Support.

Not having a high priority, development has lacked many of the physical means which help progress, but enthusiasm has remained high and thinking has outstripped actual day-to-day experimenting. Indeed, even the new conception of a "functional command" reaching out across the world through many overseas theatres is in itself an important piece of development.

LIAISON

Liaison is a feature of Transport Command's work which is more difficult to describe but which is yet of great and lasting importance. By liaison is meant the aid given to various of our Allies in training and promoting their own air transport forces. It also includes the considerable aid given to civil aviation, particularly to the British Overseas Airways Corporation, in the shape of air route facilities, training facilities, supply facilities and information of every kind. Considerable liaison work has been done with our American and Russian Allies to develop common control techniques, signals methods and general uniformity where we have to work together.

Another important aspect of liaison is the work Transport Command is doing with the Army and the Navy in combined operations. Perhaps more than any other, this Command has to work intimately with these other Services who judge the men of the RAF by their day-to-day view of them working within and around their aircraft. The prestige of the RAF in the eyes of the other Services depends very greatly on the bearing and behaviour of Transport Command's men working with those of other Services. This is a very grave responsibility. Hitherto, these sister Services have only seen the aeroplane, now they are seeing the man in the aeroplane doing his job from minute to minute and giving service.

Transport Command is so new and so different, and is expanding so rapidly that it must, of necessity, be still flexible, even fluid, in its policies. At all levels many are still learning the principles of this new task. Throughout the RAF there is a considerable lack of knowledge of both its scope and its responsibilities.

Not everywhere is it understood that Transport Command lives to give service and to make all the Forces mobile. It rests largely with each member of Transport Command to show the world what he can do and in what ways he can give that service. It is his responsibility to break down ignorance and to weave this vast organisation into the fabric of the whole Royal Air Force.

It's worth a visit —

RCAF PHOTO

WING COMMANDER R. P. MCDOUALL

WHO said, "Travel broadens the mind"?

In peace-time, I spent all my holidays and most of my savings on seeing Europe and America. Not with any idea of deliberately broadening my mind—like Thurber, I believe in leaving one's mind alone—but for pleasure. No doubt the more I saw, the more I understood about people and politics, about culture and civilisation, and my mind got, willy-nilly, broader.

I have just, thanks to Transport Command, seen Italy for the first time since 1939 and Greece, Sardinia, Egypt and Tripolitania for the first time ever. It was a tremendous thrill to be on foreign soil again; to feel the sun in the clear dry air; to see the blues of the Mediterranean and of the Italian hills; to smell herb-scented, grey and gold Greece; to witness post-card North Africa come to life with its palms, camels, sunsets, bananas, pyramids.

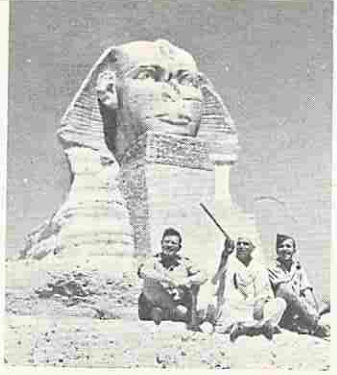
Being on duty, I spent much of my time on RAF stations. What struck me was how little travel broadens the service mind. The CO is still playing shove-halfpenny with the SAdO (Oh! I say, good shot, sir!); two navigators are still beating Flying Control at darts; the news is still on and everyone is still talking.

Orchids to people stationed near Naples who have become tremendous opera-fans. Those to whom Sadlers' Wells and Carl Rosa meant nothing—let alone Covent Garden or Glyndebourne—now pay 12s. 6d. to hear Gigli in Rigoletto. (And I mean LACs and AC2s to whom 12s. 6d. is 12s. 6d.) Excursions to Pompeii and Sorrento are popular, though whether Pompeii's popularity is due to its pornographic or its archaeological merits is not for me to say. Castel Benito run Sunday outings to Leptis Magna and Sabratha. These, you remember, with Oea (modern Tripoli), were the Three Cities of Tripolitania.

But no orchids for Athens: in a certain Mess which shall be nameless, I found only one officer in ten had been to the Acropolis. The Acropolis, in case you've never been to Greece, is Ancient Athens, and is ten minutes' brisk walk from the middle of modern Athens. I can understand people disliking music, poetry or ballet, but no one, surely, dislikes architecture. It is what, unless you are Thoreau or Nebuchadnezzar, you live in, so you might as well see the Parthenon, a wonder of the world and the world's finest building. In the Acropolis, who can fail to be stirred, not merely by the beauty of the buildings and the grandeur of the view, but by the sense that we are standing where all that we value, all that we fight for in our civilisation was born?

To expect any one who could not bother to see the Acropolis to come with me to Dahfni was too much, so B., my driver, and I enjoyed the world's third-best Byzantine mosaics together. Later, when we had bathed, and were sunning ourselves by the Wedgwood-blue sea, breathing the lemon-thyme-scented air, I realised we were looking at the site of the Battle of Salamis, decisive battle in history which, with Marathon and Plataea, kept the Persians out of Europe and enabled Athens to lay the foundations of that civilisation for which . . . but I've said that before. B. did not know about Salamis and, delving into an eighteen-year-old limbo of Greek history, I tried to recall if it was Darius or Xerxes. I hope I was right.

In Cairo I tried to take a friend to see the Tulun Mosque—ninth century. I described to his driver where it was. "But that's the wog quarter!" he exclaimed, horrified. We took a cab. Another driver, within six weeks of tour-expiry, who had spent all his overseas tour in Egypt and two years of it in Cairo, paid his first visit to the Museum with me. Together we saw with wonder the treasures from King Tutankhamen's



RCAF PHOTOS

ATHENS: *Temple of Nike*
PISA: *The Leaning Tower*

CAIRO: *The Sphinx*
POMPEII: *Mosaic fountain*

tomb, had a glimpse into a world more fantastic than a Cecil B. de Mille dream.

In these countries round the Mediterranean one can live the ordinary station life with NAAFI and Sergeants' Mess and Officers' Mess, radio, shove-halfpenny and darts; one can go into the town to Officers' Clubs, Malcolm Clubs, YMCAs, and wash down eggs and chips with cups of tea. Or one can make the most of one's enforced exile and lead, off duty, the tourist life.

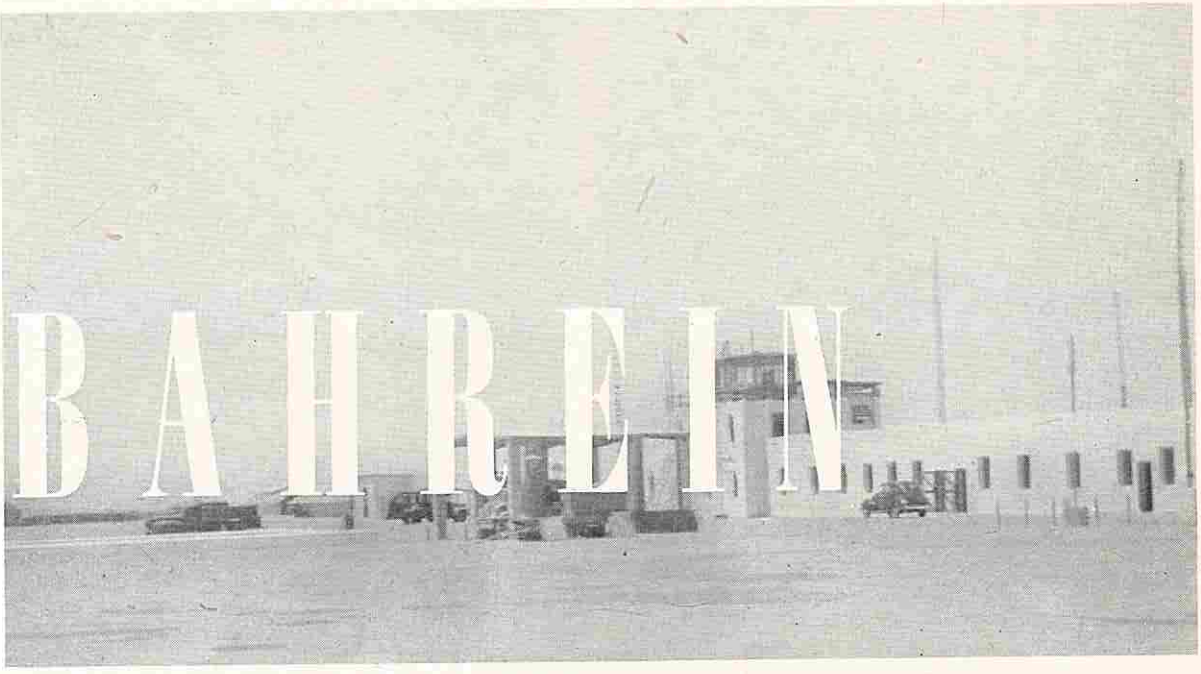
Talking to an airman in Provence, I asked what the drink situation was like. "We get a ration of beer in the canteen," he said, "but in the cafés you can ONLY GET WINE." G., who drove me in Italy, was telling me about the airmen's food. "It's very monotonous," he said. "Same old stewed peaches day after day." With peaches selling at six bob each at home, I thought: "If only your Mum could hear you. . . . "

Spaghetti and minestrone are in the menu. So are salads and fresh fruit. The RAF eats an English breakfast as well as a Mediterranean luncheon. *Propter hoc*, the siesta habit has caught on. People drink alcohol before meals and (tepid) water with them—or tea. The iced drink habit spreads slowly. Though wine costs practically nothing and hundreds of years have proved it the best drink in a southern climate, beer is favourite, preferably the heavy, tepid, English type, rather than light, iced lager. Scotch is preferred to ouzo, gin and lime (out of a bottle rather than a lime) to marsala. Where people are forced to drink wine, they drink it before or after, instead of with their meal.

ATHENS: *The Erechtheum*

The RAF are on the whole better at understanding the people than at adopting their ways, though they tend to forget whose country they are in. They sum up the Italians well and have contests in mutual admiration with the Greeks. Though they seldom learn deliberately, they seem luckily to have some sixth sense about politics. No airman in Greece, for instance, talks about "left" and "right" and "ideologies." The points of difference and resemblance between modern Greece—a Balkan country, where the vendetta still flourishes—and ourselves—the only other people in Europe with no Press censorship—are clearer to an unpolitically-minded airman than to a Bloomsbury intellectual.

I suppose there is no more merit in travelling than in stamp-collecting, mountaineering or any other hobby. But it was a luxury which cost a lot of money in peace-time and which a number of lucky people are now getting free. If only for the lines they can shoot in the local when they get back, I hope they will make the most of their chances. Also, let Colonel and Corporal Blimp remember that we owe much to the Romans (who owed nearly everything to the Greeks), much to the Normans, a good deal to the Scandinavians. We are, by origin, Europeans. Geographically—strategically and economically—we are inescapably Europeans. We can't shut ourselves up in the club Turkish bath, saying: "Gad, sir! these damned foreigners must be taught a lesson." This war has taken many people to the Continent of which we are a part—as well as to the Far East and Middle East to which we are politically and economically tied. We can stay in the Mess, playing shove-halfpenny, catch the liberty bus to the Malcolm Club (eggs and chips), and write miserably home about the shortage of beer. Or . . . we can look at what's under our noses.



Bahrein, on the S.W. coast of the Persian Gulf, is the subject of this article. It is intended to print in later issues of TRANSPORT COMMAND REVIEW *articles on other remote stations—jungle, desert, mountain or ice-cap—so that men in all corners of the Command will be able to appreciate what others are doing.*

A MAN might hold fire in his hand, Shakespeare said, by ''thinking on the frosty Caucasus.'' The converse would be true as well. The airman stationed in, say, Iceland might better endure a storm of sleet and think less of the ice in his tooth-mug, by considering the fate of his comrades sweltering in remote Bahrein.

No doubt either would willingly change places with the other, if there was no chance of Blighty as an alternative.

Like the Empire, Transport Command has its outposts, where men and officers fight two kinds of war. Concerned on the one hand with their duties and the efficient handling of men and materials, they have also to deal with nature, extravagantly hot or cold. Not for them the established station at home, with good buildings and abundant facilities. They have no liberty runs, for there is nowhere to go. The words ''leave'' and ''forty-eight'' mean little or nothing. There they are and there they must stay until their time is up, wringing what pleasure and solace they can from an unpromising situation by their own talents; facing and defeating difficulties with their own humour and stoicism.

It is well that they should be remembered together with the work they do, for they are often so far away from more civilised centres of activity that they might easily be forgotten.

Little that happens to us is wholly accidental. If you find yourself in Bahrein on a tour of duty, you are simply making the latest link in a chain of events which began more than three hundred years ago. When Richard Steele and John Crowther, officers of the East India Company, stepped ashore at Bahrein they made it certain (other things being equal) that one day you would follow them. It was in 1616 that they made their first visit, sixteen years after the founding of the company. Energetic and far-seeing, they were out to establish a trading post. As long before that as 1507, the Portuguese with their then customary energy had irrupted into the Persian Gulf to add glory to their Empire. What they got from it must have seemed a good thing, for in 1598 the English made their first visit and obtained ''certain mercantile concessions.'' The projected trading post was not established at Bahrein, but others came into being in the Gulf. The English defeated the Portuguese in 1612 in a naval action, and from then on the power of the Portuguese declined.

In 1640 the Dutch put in an appearance and began to acquire influence in the area. When William of Orange came to the throne of England in 1688 there was an alliance between Dutch and English. The Dutch withdrew from the Gulf, leaving the English in more or less undisputed power. This was a pattern of events repeated in several parts of the world, where trade expansion and the rise and fall of empires involved

Col. R. E. Cheesman, C.B.E.

A great spring of fresh water on the island of Manama, provides perfect bathing.

Boats of the pearl fishers lie at anchor beside the white quays of Bahrein.

Dutch, French, Portuguese and English in many wars and stratagems.

There is much more to the history of the Persian Gulf—whole volumes on frontier disputes, trade concessions, the battles of local chiefs, troubles over piracy and the trade in slaves. The British Navy first appeared in the Gulf waters in 1755, and in 1841 the Persian Gulf Squadron of the Indian Navy was formed to enforce our point of view. A British Political Agent was first appointed to Bahrein in 1904. Time and custom have ironed out many of the former difficulties in this part of the world. Bahrein with its aerodrome, its seaplane base, and oil interest is now a peaceful place, whose ruler is one of our best friends.

The Bahrein of to-day is very important. As a terminal staging-post on the Far East route it is controlled jointly by RAF Transport Command and the American ATC. Through it passes a great volume of air traffic, and there is more to come. It is now perhaps only an outpost in the sense that it is geographically remote. In fact it is one of the most hard-worked and strategically valuable stations in the Command.

It would be untrue, as well as an insult to the men who have to work there, to pretend that Bahrein is particularly comfortable. But it has certainly improved. Since the days of Steele and Crowther (who presumably had no proper tropical kit, nor even a Wolseley helmet) a good deal has been done to make the place at least tolerable by white men.

The climate makes Bahrein somewhat less attractive than other places for a tour of duty overseas. "It's not the *heat*, it's the *humidity*," has been said so often that it has now become a wry joke amongst those who serve in Bahrein. Here the humidity is higher than anywhere else in the Gulf, and those who have experienced high humidity combined with heat will know what this can mean. The worst months are July, August and September. April, May, June and October are little better, save that they are relieved from time to time by dry spells when a strong wind blows from the north.

The temperature on May 2nd of this year reached 116 degrees, the highest, so far as can be discovered, yet recorded at Bahrein. This figure is not astronomical by the standards of Khartoum or Jacobabad, but—"it's the humidity" which makes it rather less easy to bear.

The climate's severity, however, is not unremitting. The minimum temperature of the year at Bahrein is about 50 degrees, which is reasonable. During the latter part of November the weather becomes cooler. The months of November to March are pleasant enough. Men take greatcoats and blankets with them to the open-air cinema, and it is even necessary to have fires. Rain, with which we perpetually contend in England, is almost unknown in Bahrein. Last year's rainfall attained the single figure of four inches.

There are two islands at Bahrein. The larger, Manama, has an Arab town, and the houses of local magnates, British officials, and oil company employees. The smaller, Muharraq, is mostly occupied by the aerodrome. A causeway connects the two islands.

The population of these islands is approximately 150,000, and is composed chiefly of Arabs and Baharina. The Baharina are the original inhabitants, and are still, after centuries of the occupation and reoccupation of various Powers, a peasant class engaged in cultivation. The Arabs concern themselves with business, mostly with the traffic in pearls. In this pursuit many prosper, as can be seen from their fine houses, angular white blocks amongst dark trees, and handsome motor-cars chivvying the donkey-carts on the dusty roads.

In addition to the Arabs and Baharina, the population of Manama town includes Indians, Iraquis, freed Negro slaves, and a small but influential community of wealthy Persian merchants, who have migrated from Persia mostly during the last fifty years.

Manama presents the expected appearance of most

middle-eastern towns. Square houses with small windows, or with none (for the sake of coolness), shops and public buildings with deep arcades, are placed at odd angles with vacant lots, dumps, abandoned premises falling into decay. Everywhere there is contrast between the up to date and the unimaginably antique. Westernisation has made its inroads here and there, but in no coherent fashion. For the ordinary man of Bahrein life cannot have altered much in its essentials these last few hundred years. There is a Government which makes laws, enforces an educational system, protects the pearl-fishers from too outrageous exploitation, and regulates relations with the outside world. The needs of commerce and of war have brought changes to the islands which may have permanent and increasing effect. But still, in the hot weather, the leading citizens drive out into the desert, away from their houses, to sleep in the open air. The Sheikh and his family still wear the splendid gold burnous and corded head-dress of tradition. Hawking, with all its medieval associations and great pictorial beauty, is still the favourite sport. It is such sharp manifestations of contrast as these that will make the interest of Bahrein for the visitor who might, at first glance, suppose that there is "nothing to see."

"BAHREIN—ELEVATION ONE FOOT" was on a notice displayed at the control tower. Indeed, the island almost appears to be below the sea; when you step out of an aeroplane and look at the water a quarter of a mile away, it is almost at eye-level. The shallows stretch far out, and when the wind is blowing, the waves with their crests are brilliant green against the sky's absolute blue, like a meadow full of white flowers. The name Muharraq means "Island of Burning," and Manama means "Island of Sleeping." It is believed that, centuries ago, Muharraq was used for the cremation of bodies, whose ashes were later buried in Manama, which to this day contains a number of burial mounds of great archaeological interest. There are springs of fresh water in these islands which irrigate gardens and date-groves. One such spring, the Virgin Pool on Manama, is a favourite for bathing parties.

The summer working day for men of the Royal Air Force in Bahrein is from 6 to 12.30 daily every day of the week. Recreational facilities are, necessarily, not lavish. Bathing is probably the most popular distraction, particularly in the early mornings. In the afternoons the sea becomes too hot for comfort, since the water is very shallow a long way out.

A recent sea temperature, taken at a depth of 6 ft. two miles off shore, at 10 in the morning was 84 degrees. Very often the water, late in the day, is worse than merely uncomfortable. It is actually too hot to be borne. There is, however, a bathing pool on the camp, and a good bathing beach at Zallaq, half-way down the west coast of the main island, as well as the fresh-water pool. In the evenings there is a cinema on the camp which is shared by the British and the Americans on a fifty-fifty basis.

The town of Manama possesses one coffee-shop-cum-ice-cream-parlour which is in bounds to troops, where safe cold drinks can be obtained and there is a powerful radio. There are also various shops, mostly run by Indians, of a kind familiar all over the East.

For the rest, men stationed at Bahrein find recreation where they can. A possible way of spending "leave" is to go out with the pearl fishers. Pearling is the major industry of Bahrein, and the pearl divers are very expert. The pearling vessels go out during four months of the year, between June and September, the sea being very hot at these times and so not uncomfortable at depth. The time a pearling vessel can spend at sea is dependent on the time its provisions, notably water, will last. It is not uncommonly for as long as three weeks, extra food for the crew being provided by fishing.

Refusing to be hampered by the limitations of the place, several RAF men have made friends among the civilians. The Ruler of Bahrein, Sheikh Khalifa bin Sheikh Sulman el Khalifa, whose family has ruled Bahrein since 1783, is extremely friendly to the British and most generous in entertainment.

A number of men stationed at Bahrein regularly enjoy his hospitality, which may be a cup of tea or coffee or a dinner of spiced curry and rice, fried fish, boiled eggs and chapattis—either accompanied by much conversation. The Ruler's son, Sheikh Raschid el Khalifa, has learned English from his friends in the RAF and now acts on these occasions as interpreter for his father.

For the hot months, the Ruler leaves his palace on Manama and moves into a camp on the edge of the aerodrome on Muharraq. The camp is a collection of huts built of *barasti*, a native form of construction like wicker work. Here he enjoys the sea breeze when it

In Sheikh's clothing. RAF Sergeant, in Arab prince's dress, greets Sheikh Raschid el Khalifa.

is blowing, and here he is visited almost daily by the W/O Discip., who is high in the Sheikh's favour. An excellent arrangement politically, as it happens, since the W/O with a knowledge of Arabic and the ear of the Ruler can deal very effectively with any troubles which may arise over native labour on the aerodrome.

Some time in the nineteen-twenties the present Ruler's father visited England and, on his return, put in train many improvements of a progressive kind. Electric lighting was installed in Manama, artesian wells were sunk to assist in irrigation and provide a domestic water-supply, hospitals were built, and a motor-road was laid along the foreshore. The first house of cut stone ever to be built on the islands was erected as a palace for the Sheikh.

The buildings of the RAF Camp at Bahrein are mostly of *barasti* with, in addition, some brick and mud construction. One of the chief troubles about living in a hot and humid climate is that it is difficult to get a really good night's rest. With air-conditioning in sleeping quarters, however, a man is assured of a proper night's rest, can even sleep under blankets. Further, air-conditioning can, with ingenuity, be applied anywhere; it is not necessary that the buildings it is applied to should be western buildings of brick or stone.

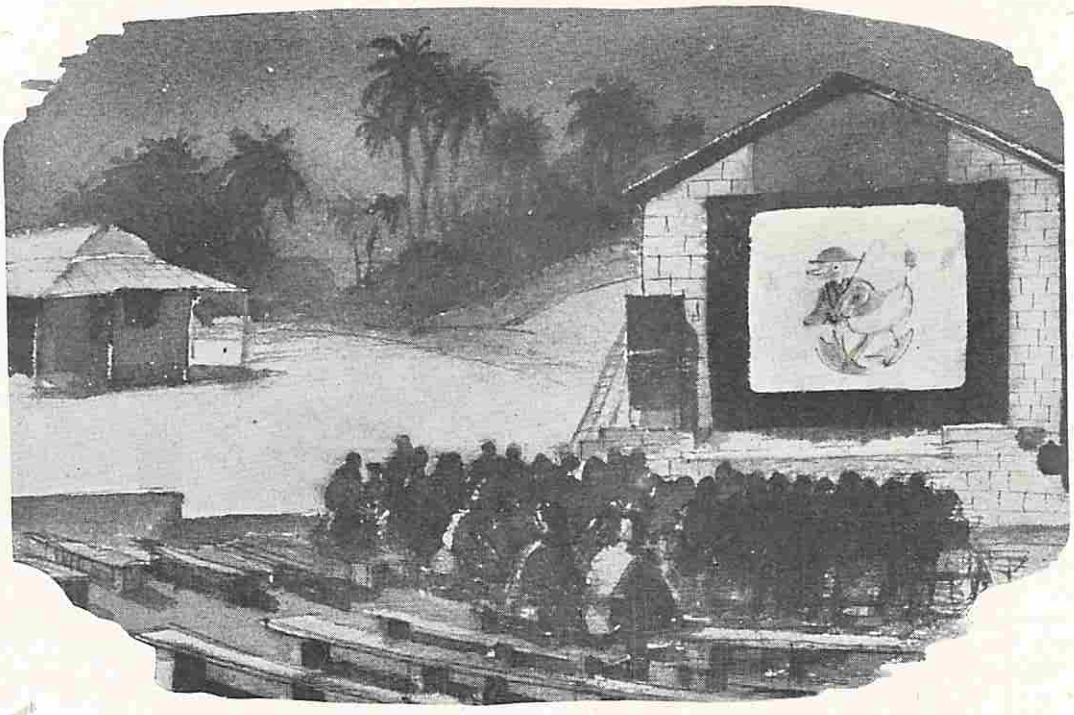
At Bahrein first the Americans, and lately ourselves, have installed air-conditioning in the native-built sleeping quarters of the camp. This innovation will certainly make a very real difference to the comfort and health of white men stationed at Bahrein.

At present men probably suffer most from a lack of variety in their daily lives. The place is flat, a side-piece to the great table of Arabia. There is nothing in the landscape to relieve the eye. It is an island, and one so small that all activity is circumscribed. Without any specially created distractions, with the best heart in the world, boredom must often supervene.

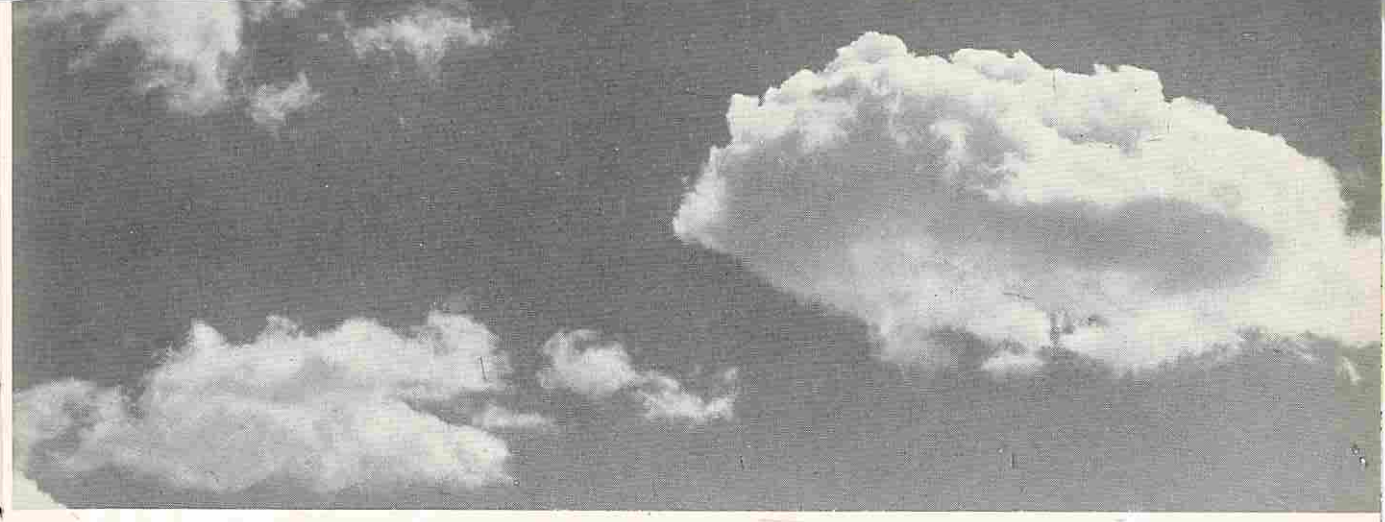
Still, Bahrein is a growing station. As time goes on, and its importance increases, many of its present rigours will be removed. Further improvement in the mail services, a possibility of travel by air on leave to Palestine or Syria, a greater diversity in recreation, better food and drink, will help to remove Bahrein from the list of tough stations.

To the traveller, set down on his way to or from India it is intensely interesting.

The Passenger and Freight section is clean, efficient and as cool as it can be made to be. Food is well-provided, and the rest rooms for passengers have books, papers, contemporary paintings on the walls to take thoughts away from the torrid day outside. Most important of all, the traveller may observe the way in which the station staff, despite the warmth of their weather, contrive to be courteous, patient and even humorous, although the traveller is merely passing through, and they are obliged to stay.



Sketch by HAILSTONE



R A F Meteorological Services for Air Transport

WING COMMANDER D. A. DAVIES, *M.Sc., F.Inst.P., Command Meteorological Officer*

THE science of meteorology is the study of the atmosphere and the atmosphere is the element in which the Royal Air Force operates. Meteorology and the operations of the RAF have therefore been closely associated at all times. It is an association which can never be broken and it is one that is mutually beneficial, for progress in the one induces progress in the other.

Although meteorology serves many other branches of our national life, both in military and civil spheres, its over-riding importance to aviation is recognised by the placing of the State meteorological service in a department of the Air Ministry.

Operations of the RAF cover a wide field of air activities and each type of operation presents its own meteorological problems. The meteorological service of each Command has, therefore, to be developed to serve its own particular tasks.

In Transport Command the field of activity is particularly wide and varied, both in the operational and geographical sense. But in broad terms, and from the meteorological point of view, its functions are two-fold —flights along overseas trunk routes and flights in close support of military operations. In the first group there are the scheduled service flights along the trunk routes, special and VIP flights, and the flight delivery of aircraft to various theatres of war. The second group includes the transportation by air of ground forces, paratroops, gliders and freight in close support of military operations.

TRUNK ROUTE OPERATIONS

There are three salient features of trunk route operations which particularly affect the organisation of an adequate meteorological service. Firstly, the long distances covered in individual flights ; secondly, the large number and great extent of the routes operated ; and finally the large number of aircraft which operates daily on certain routes, especially on the route UK to India.

The meteorological organisation designed to meet such operations must cater for the preparation of flight forecasts appropriate to long flights, which are often over vast areas of sea and may last over fifteen hours. It must cater for the provision of such forecasts at all stations along the Command's many routes. And it must produce those forecasts in adequate numbers and provide for meteorological briefings of large numbers of aircrews simultaneously at certain major stations.

The first step in the preparation of a flight forecast for an overseas flight involves the drawing of synoptic charts covering large areas of the earth's surface, and facilities must be available for a full interchange of weather reports and upper air data between forecasting centres. In addition, the forecaster is able to ascertain the views of the forecaster at the destination regarding landing conditions and conditions along the second half of the route. There is thus a constant routine interchange of such forecasts between the major forecasting offices along the routes either by W/T broadcasts, or through normal signals channels. Arrangements for the transmission to the aircraft in flight of weather reports and amendments to the forecast are also necessary. Conversely, aircraft in flight can issue reports on the weather experienced, thus providing valuable information for aircraft following on the same track.

THE FLIGHT FORECAST

A complete flight forecast consists of

(*a*) a synoptic chart for the latest synoptic hour;
(*b*) a forecast chart appropriate to the flight;
(*c*) a pictorial representation of the cloud structure, freezing level, etc.;
(*d*) a written forecast for each 5° zone, which includes winds at heights up to 15,000 ft. (or higher if necessary), temperatures at these heights, visibility, amount and type of cloud, the height of the base and tops of the cloud, heights at which icing will occur, the intensity and type of ice that will form, and the mean sea level pressure;
(*e*) a written forecast of landing conditions at the destination and at suitable diversion airfields.

Obviously, an accurate forecast of this kind for a long flight can only be prepared after careful and prolonged study of the appropriate synoptic charts, and even after the forecaster has decided upon the contents of the forecast, the physical preparation of it may involve several hours' work.

At some of the busier Transport Command stations the number of aircraft operating along the same routes at more or less the same time may be considerable and forecasts in adequate numbers can only be made available by use of a mechanical duplicator. In such cases a large number of aircrew has to be briefed simultaneously and special briefing rooms are often used.

FLIGHTS FROM THE UK

Transport Command air routes radiate from the UK in all directions. Direct flights to Cairo, Moscow, Montreal, Azores, Iceland, Stockholm, Hamburg and numerous other places are of frequent occurrence, and in many cases routine. The meteorological service of Transport Command in UK must, therefore, be capable of preparing flight forecasts and issuing meteorological advice for long flights across a great many different areas.

Clearly, it would be uneconomical to maintain a meteorological office at each Transport Command station—or even at each Group Headquarters in the UK—capable of issuing carefully prepared forecasts for all routes from the British Isles. The policy actually followed has been to establish a number of major forecasting offices (called Type I Meteorological Offices) at which a close and constant watch is kept on the weather in a single area. The areas of responsibility of these major forecasting offices are naturally allocated so that each office covers the area through which flows the bulk of its own air traffic. Any station requiring a flight forecast for a particular route obtains it from the Type I Meteorological Office responsible for the area through which the route extends.

MAJOR FORECASTING OFFICES

Transport Command Type I Meteorological Offices are established in the UK at:—

HQ 44 Group covering routes to Azores, Gibraltar via Bay of Biscay and France, West Africa and NW Africa.
HQ 46 Group covering all routes to Continental Europe.
HQ 47 Group covering all routes to Mediterranean except to Gibraltar.
TAC Prestwick covering N. Atlantic routes.

Forecasters at these offices concentrate almost exclusively on the routes specified and the flight forecasts prepared are thus as accurate as possible on the data available. These forecasts are then issued to the airfields from which the aircraft will depart. Smaller Met. offices (Type II) are established at all departure airfields. At these the flight forecast folders (based on the forecast received from Type I Met. Office) are prepared for issue to aircrews, and forecasting officers are available to explain the forecast in the light of the latest synoptic charts and to give any meteorological advice on the flight which the aircrews may require.

The areas covered by the 44, 46 and 47 Group offices are adjacent, and in some cases overlap. In order to ensure co-ordination of views on the weather in these areas a telephone conference is held twice daily at fixed times between these offices and the Met. Office at HQTC. The duty forecaster at HQTC normally acts as chairman and there is complete interchange of information and views by means of special facilities on the HQTC switchboard. Discussions with the Met. Office at Prestwick are held as and when necessary.

It has been explained that when a forecast is being prepared for an overseas flight, the views of the forecaster at the destination of landing conditions and conditions on the second half of the route are always available. Routine forecast transmissions are periodically made for this purpose from the Type I Met. Offices at HQ 44 and 47 Groups and from Prestwick to

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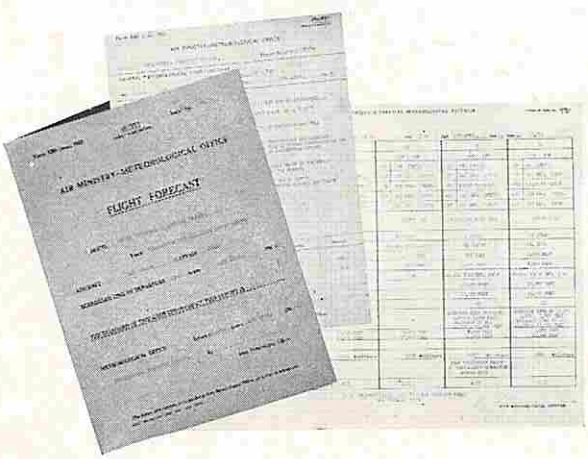
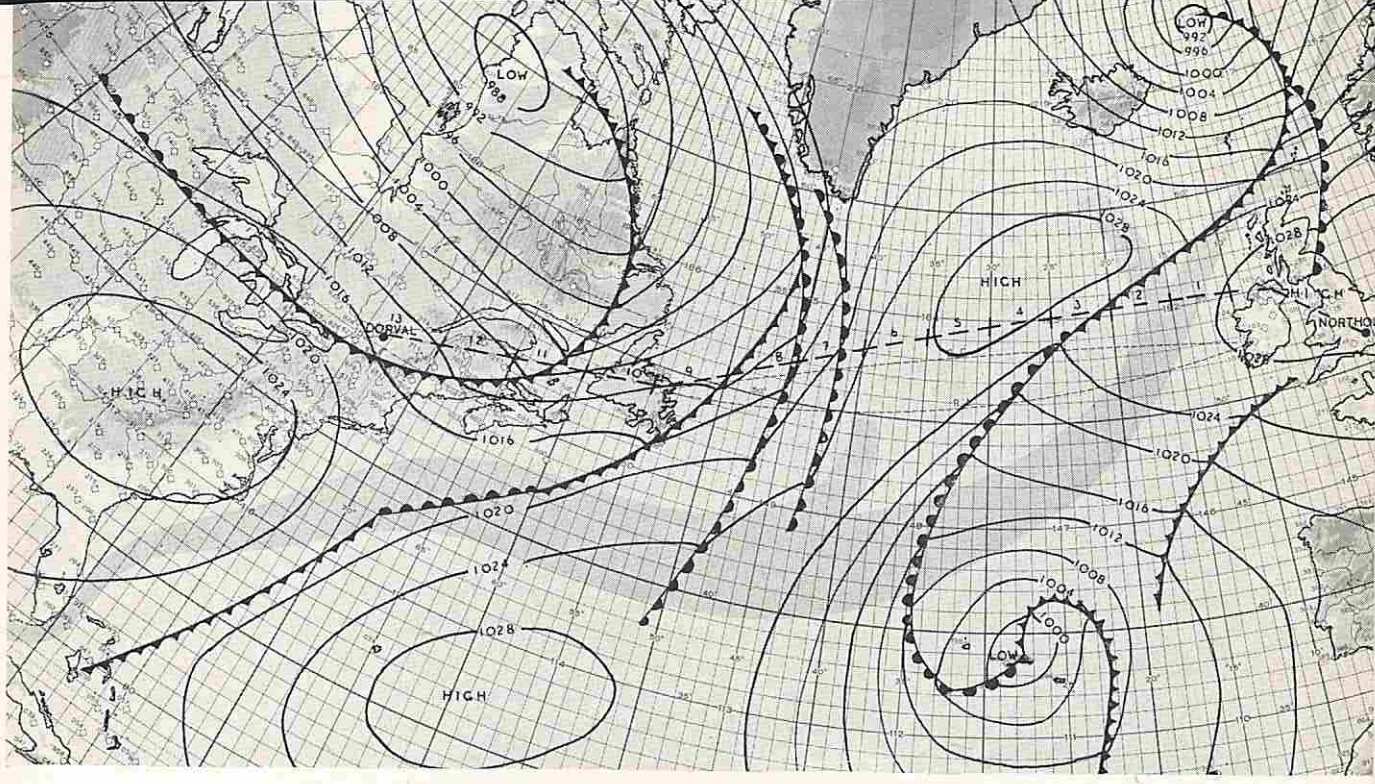
FLIGHT FORECAST. *The Flight Forecast Folder contains a summary of the general meteorological situation, a tabular forecast for each 5° zone, and a forecast of landing conditions at destination and diversions, in addition to copies of the charts shown on the following pages.*





Forecast chart, showing anticipated weather situation for Atlantic flight, Dorval—Northolt; the forecast chart is prepared from a study of a series of synoptic charts which depict the actual weather situations at specified times.

the principal Met. Offices overseas. Similar information received from overseas forecasting offices is circulated to Type I Met. Offices in this country. All these outgoing and incoming messages are received at HQTC.

FLIGHTS FROM OVERSEAS BASES

To a large extent, Transport Command routes are operated through areas the responsibility for which belongs to other Service Commands, and through many foreign countries. In these circumstances, the policy followed is to utilise the Met. service of the Commands or countries involved. In this way duplication of effort is avoided and the fullest use is made of existing facilities of manpower, signals channels and local meteorological knowledge. It is, of course, important to ensure that as far as possible uniformity is observed in the method of preparing forecasts, the use of codes for ground-air weather reporting, etc., and it is the Meteorological Office, Air Ministry, which acts as the co-ordinating body in making these arrangements.

The same general principles regarding exchange of meteorological data and forecasts between major forecasting offices which apply to flights from UK also apply along all Transport Command routes overseas.

As examples of the use of local Meteorological services, the MEDME Command meets TC requirements along the major part of the route to India; ACSEA and the India Meteorological Department in India and the Far East; Canadian Meteorological Service in Canada; BAFO and the French Meteorological Service on the Continent.

In order to ensure that the special requirements of Transport Command within 216 Group (Middle East) and 229 Group (India) are fully appreciated by the various local meteorological services and by HQTC, a senior Meteorological Officer has in each case been appointed to the Group HQ staff. Similarly Transport Command Met. Liaison Officers have been appointed to certain French Meteorological Offices.

MET. SERVICES FOR TRANSPORT SUPPORT OPERATIONS

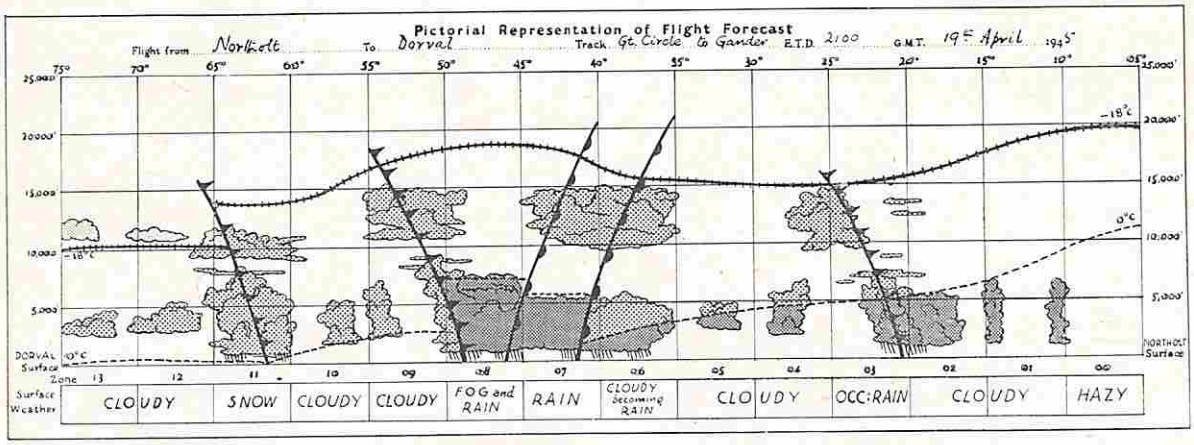
Transport Support Operations are of quite a different character from the operations along more or less fixed overseas routes, and the meteorological service required is determined by three principal characteristics:—

(*a*) the flights may be either over enemy territory to drop paratroops, gliders or supplies and return to base, or they are to forward airfields or landing strips in close proximity to enemy held territory;

(*b*) the number of aircraft involved is normally very large;

(*c*) the aircraft are under the direct control of the Group HQ during the whole of the flight.

A meteorological organisation designed to meet such operations must, therefore, pay special attention to those factors of weather which particularly affect paratroop and glider operations (speed and gustiness



Pictorial chart of anticipated cloud and upper air conditions on Atlantic flight.

Cloud in which no icing will occur.
Cloud in which icing will occur.
Cloud in which severe icing is improbable.

of surface wind, amount of low cloud, and QFE over dropping zone, where low flying is necessary); it must provide for the production of forecasts in adequate numbers and for meteorological briefings of large numbers of aircrew simultaneously; it must supply immediate and up-to-date information to the Controllers at Group HQ; it must normally operate without meteorological assistance from the target areas.

These requirements are met by establishing a Type I Met. Office at Group HQ immediately adjacent to the Operations Room. This office supplies meteorological information and advice to the Operations Controller and also supplies advice and forecasts to the Station Met. Offices where Type II Met. Offices are normally established. At the Station Met. Offices the forecasts are duplicated in adequate numbers for the aircrews and "mass" briefings are normally conducted in a special briefing room.

The distances involved in transport support sorties are not normally as great as those involved in trunk routes and the elaborate flight forecast issued for the latter is replaced by a single cardboard form on which a brief statement of the synoptic situation is given, followed by the usual information regarding weather, cloud, visibility, etc., to be expected. In view of the many other factors beside weather to which transport support pilots must give close attention, a simple single forecast form of this type is preferable to the more elaborate type. The forecast form used is, in fact, the same as that used in Bomber operations.

MET. OFFICE AT COMMAND HQ

At Headquarters, Transport Command, there is a Type I Met. Office where synoptic charts covering areas extending from North America in the west, to Cairo and Moscow in the east are drawn. All the routine forecasts exchanged between the Groups pass through the Command Met. Office and it is from here that the telephone conferences are conducted twice daily with the forecasters at 44, 46 and 47 Group HQ.

The AOC-in-C and his Staff Officers are thus kept informed of current weather on all Transport Command routes in these areas. The synoptic charts are displayed each morning at a conference held by the AOC-in-C and the weather conditions are discussed in the light of current operations. The Met. Office at HQTC also supplies any meteorological information and advice which the AOC-in-C may require to assist him in making important decisions regarding Special Flights dealt with at Command level. Another of its commitments is the supply of climatological information on existing or proposed Transport Command routes or areas of operation to "Plans" and other branches in HQ.

CO-OPERATION WITH OTHER SERVICES

Transport Command's meteorological organisation is equally available to any Allied operators requiring its services. Except in actual theatres of war, many of the Command's routes are also regularly flown by BOAC aircraft, and it is common practice at many staging posts to conduct joint briefings of BOAC and RAF crews. Perhaps the best example of co-operation in this sphere is seen on the North Atlantic Ferry Service. BOAC and RAF crews are jointly briefed on both sides of the Atlantic.

THE ARMY

LIAISON OFFICER

BY MAJOR M. R. K. GARNETT

It would seem peculiar that Army co-operation—as a technical subject, a skilled trade—should be necessary in the armed forces to-day. After all, it is clear to every one that, whatever coloured uniform we wear, we are fighting the same war against the same enemy, and to most of us it is as clear that winning the war depends equally on all three Services.

The need for the existence of "Army co-operation," however, is undeniable. There is a fundamental difference between Army and Air Force discipline, there is a difference between the language—the technical slang—of the two Services, and there is a different way of thinking, a different approach to problems. These differences have led to a feeling that the two Services are races apart and that never the twain shall meet. This opinion—more widespread than is sometimes realised—has got to be overcome in order to achieve efficiency.

Before real co-operation is attained there are various basic requirements. First of all, and the basis of all the others, comes mutual respect, and following from this is mutual trust and confidence. An airman imbued with a feeling that "alone I did it" and that the Army would have done better if employed in building bigger bombers, will never be able to work happily with that Army, nor will a soldier be able to work with the Air Force if he believes that the airmen never eat anything but eggs and bacon, never sleep anywhere but in bed, and never buy their own beer. Developing from this mutual respect is bound to come a willingness to see things from the other fellow's point of view, a community of purpose and a desire to help. Once this state of mind has been induced the problem is no problem and co-operation becomes a pleasure.

The friendly co-operation which has been achieved already all over the world between the airman and the soldier—in Burma between the 14th Army and the Transport pilots who bring them their guns and butter, in Europe between the Airborne troops and the aircrews of 38 and 46 Groups—is a difficult thing to define.

It does not consist of endless studied politeness —there is no "after you Claude—after you, Cecil" about it.

No more does it consist of the Army being so interested in the Air Force or *vice versa* that people try to tell each other how to do their own specialist jobs. Rather does it consist of an atmosphere, an almost tangible unity of purpose, based on mutual respect and personal contact between the very, very senior officers as well as between the lower forms of life.

In order to make the joint machine run smoothly the Army has created an Army Liaison staff. There are, on this staff, officers who are attached to Command Headquarters, and to each transport support Group and squadron.

The duties of these ATLO's are laid down as follows: To give advice to the RAF on Army matters and to keep touch with all Army formations with whom the squadron may deal.

There may also be with a transport support squadron an "Airborne Control Officer" whose job is to tie up Army/Air matters when an airborne assault is brewing. He will be a parachutist or an air landing troop himself, and will know the technicalities of loading gliders and fitting parachutes. And there may also be a "Movement Control Officer" on the Station who will act on the airfield much as an RTO does on a railway platform.

These Army Liaison Officers are there, it was once said, "to make sure that everything goes right." Your soldier will know your language and understand your point of view. He is there to interpret the Army to you and you to the Army. He may seem at times to be stubborn; he is only defending the point of view of the Army which might otherwise be expressed considerably more forcefully and with much less tact.

His job may sound a sinecure—but it isn't. Quite apart from knowing every individual in thirty or more Dakota crews he has to know and to deal with any number of Army personnel from generals to privates.

And always the Army Liaison Officer has one aim in mind, he exists for one purpose alone, to create, between the Army and "his" Squadron an atmosphere in which unity of purpose, mutual confidence, and mutual respect may flourish; once this aim is achieved efficiency can follow but if this spirit is lacking efficiency will never be achieved.

AIRCRAFT BEHAVIOUR IN HOT CLIMATES

WING-COMMANDER
H. G. WASS, 229 GROUP

ANY one who has sat for more than a few moments inside an aircraft when it has been standing in the sun during the hot season in India, knows what it feels like to be almost grilled alive. Temperatures of 160° F. and more are frequently recorded inside the aircraft, and maintenance personnel claim that the only difficulty in frying an egg on the outside metalwork is to get the egg.

It is in fact a remarkable thing that aircraft do perform so reliably in the extreme conditions experienced here in the East, particularly as servicing facilities are nothing like so well developed as at home, and a hangar is a rarity at the majority of our Staging Posts.

There are, of course, points which have to be watched and special precautions that have to be taken, but they are fortunately of a kind that offer no great difficulty.

As would be expected, engine life on the whole is shorter in hot climates because of the sand and grit in the atmosphere, and the greater rate of corrosion resulting from the humid atmospheres prevailing in many places.

Cooling troubles are more prevalent among liquid-cooled engines and very great care has to be taken to limit ground running and taxying to the very minimum, otherwise engine failure will occur rather sooner than later. For some reason, air-cooled engines are not so sensitive to the different conditions, possibly because extra cooling fans are introduced behind the propeller.

Rubber deteriorates at a considerably increased rate when subjected to relatively high temperatures, and so such items as coolant rail leads and connections together with ignition leads have a much reduced reliability. The chief means of preventing complete failure is a more frequent and thorough examination of these items on inspections.

Another point which has to be watched most carefully is the correct adjustment of controls, either tubular or cable. The extreme range of temperature causes an appreciable alteration in lengths if the controls are long and allowance must be made for this during adjustments.

Special precaution has to be taken to prevent the ingress of sand into the fuel tanks, and in general the fuel is filtered through a chamois leather during the actual refuelling operation with consequent inevitable delay.

Wooden or composite airframes are subject to warping and deterioration of the glued joints, so that wherever possible wooden aircraft must be kept under cover or in the shade. Perspex panels also have a habit of warping badly in the heat.

Perhaps the chief sufferers however are the tyres, which never have an easy existence even in temperate climes. The hot weather appears to be the last straw, and tyres frequently give up the unequal struggle when only half as old as their more fortunate relations in other parts of the world. The only palliative is to make the utmost use of covers.

Writing of covers, these must be used at all times; tyre covers, engine covers, pitot head covers, etc.—especially the last, as all manner of oriental insects develop a passion for crawling into pitot heads and making their home there.

There is no complete cure for these troubles which are inseparable from the life of an aircraft in the tropics, but they can be and are greatly minimised by keeping aircraft in the shade wherever possible, and adapting the maintenance schedule to the prevailing conditions.

TO ALL
IN TRANSPORT COMMAND

This is your Review. It is intended to give a general picture of the life and work of the Command to every one working in this now immense field.

Contributions are urgently needed. Because this, the first number, is composed mainly of articles by Senior Officers, please do not suppose that these are to be its only contributors.

'Transport Command Review' needs articles, photographs, drawings of general interest, *and of a reasonably serious nature, from* ANY ONE *in the Command who can write, draw, or take pictures.*

Please address contributions to

The Editor, 'Transport Command Review,' HQ., Transport Command, R.A.F., Bushy Park, Teddington, Middlesex.

Photographs and drawings will be handled with great care and returned after use.

Staging Posts

IN WAR AND PEACE

The closing stages of a war on the European scale are inevitably accompanied by chaos in transport and communications. One of Transport Command's major duties has been to restore those communications and in this the Staging Post is one of the most important instruments.
This article, by Group Captain J. Bradbury, D.F.C., O.C. 111 Wing in 46 Group, tells the story of the Staging Posts in N.-W. Europe.

ON June 21, 1944, the nucleus of what was then known as Advanced Headquarters, 46 Group (under the Command of W/Cdr. L. A. Strange, DSO, MC, DFC) was flown to landing ground B.2 in Normandy with the task of organising and controlling air transport alongside Headquarters 83 Group, which was then the senior Royal Air Force formation on the Continent. W/Cdr. (later G/Capt.) Strange also acted as Air Transport Advisor to Air Vice-Marshal Broadhurst, then the senior RAF Officer in the theatre. Later, when Headquarters 2nd TAF Main arrived on the beaches, Advanced Headquarters 46 Group moved and took up their quarters in the orchards at Le Tronquay with the Senior Formation.

At this time two Forward Staging Posts were located on the Continent working with 83 and 84 Groups, but as their establishment was designed entirely to act as lodger Units with no airfield facilities or equipment, they were quite unable to operate without the assistance of a TAF Airfield Headquarters. On the request of 2nd TAF Main these Units were converted into what were then called Terminal Staging Posts, being designed to operate and control any airstrip entirely independently of any outside assistance.

When the Americans broke through at St. Lo, and indeed until the liberation of Paris, 46 Group had three Terminal Staging Posts located in the theatre, Nos. 18, 19 and 104. The advance was so rapid through France, Belgium and into Holland that the whole ground organisation of air transport had to take on a flexibility demanding the utmost improvisation. Time and again detachments of the SP's had to be thrown forward to new airstrips or airfields to handle loads, mostly of petrol and ammunition, which were flown in to keep operational aircraft flying and armoured divisions on the move. The main body of 18 Terminal Staging Post actually moved five times in the space of six days and was always ready to operate within six to twelve hours of reaching its next location.

The Advanced Headquarters 46 Group moved forward with the general advance, accompanying TAF Main Headquarters, first to Amiens and eventually to Brussels on September 14, 1944. It was agreed at a conference at Amiens on September 12, 1944, between the Air Marshal Commanding 2nd TAF, the AOA 2nd TAF and AOC 46 Group that 111 Wing should be formed and take up its location near to TAF in Brussels.

No. 18 Terminal Staging Post arrived in Brussels, taking up its quarters on the old Brussels-Evère airport on September 3, 1944, the day of the liberation of the city. The Germans, having retained possession of all the Channel ports, and the road communications being quite incapable of dealing with the supply situation, air transport at this juncture really came into its own. From September 3rd until early October the Brussels-Evère airport (B.56) handled between 400 and 500, and often more Dakota aircraft a day, and more than 1,000 tons of petrol and ammunition were loaded and unloaded and sent forward in an endeavour to keep the armies on the move. It is doubtful if any airport ever handled the intensity of traffic then borne by B.56, for in addition to the air transport commitments, 2nd TAF Communication Squadron and two Spitfire Wings were using the same runway. This tremendous traffic strained the resources of 18 TSP to the utmost, since the Unit was only designed to handle 200 tons of freight a day. The work would, in fact, have been quite impossible without the willing co-operation of the RASC, who not only performed their function of unloading and disposing of the Army freight, but also helped with the loading of tremendous numbers of casualties into the empty aircraft for transport to the UK. Accommodation was eventually obtained for the Wing Headquarters in Boitsfort, a suburb of Brussels.

The Wing continued to carry out its functions

of controlling tactical air transport commitments required by Headquarters, 2nd TAF, and being responsible, through its Staging Posts, for the operation of scheduled services from U.K. to Continental bases throughout liberated Europe until No. 107 Wing was formed to assume its responsibilities in France.

On November 13th I took over command of 111 Wing. At this time it became apparent that an airfield in the Brussels area which could be used entirely for transport aircraft was essential, and the airfield at Nivelles, south of Waterloo, was decided upon. Sufficient Pierced Steel Planking was flown from England to Merville in France, and from there transported by road 96 miles to Nivelles, where a 1,200 yards runway was built under trying weather conditions. Later, in December, No. 104 Staging Post, which had carried out this and other commitments at Merville, was moved to Nivelles and by December 31st the airfield was ready to receive traffic as the only all-transport airfield on the Continent.

Its opening days were unexpectedly hectic as a result of the enemy attacks concentrated on most of the larger 2nd TAF airfields on January 1st. Large scale diversions had to take place, and on its first week of opening, 104 Staging Post at Nivelles dealt with 235 aircraft containing 969,180 lbs. of freight, 101,590 lbs. of mail, and 111 passengers.

Suddenly, during April, liberated prisoners of war began to arrive from the forward areas. No warning had been received and arrangements had to be hurriedly improvised. The prisoners increased in numbers daily. Many were in very poor shape and some, besides those from Belsen, in need of immediate medical attention. Feeding, washing, rest and accommodation, as well as medical services, were provided from the strained resources of the Staging Posts. The work was hard but immensely satisfying to all who so cheerfully turned out to help these grateful passengers.

With the rapid advance into Germany the Main Headquarters of 2nd TAF, together with 21 Army Group, moved forward to Suchteln, near Krefeld, accompanied by an Advanced Headquarters of 111 Wing. The first two weeks were spent by Officer Commanding Wing in landing on recently captured airfields and reporting on their suitability for Dakotas. When the Wing Anson touched down at Fassberg the ground recce party had not yet arrived, and there were many Luftwaffe men anxious to surrender, whilst scores of liberated political prisoners were systematically looting the offices and hangars.

The rough, triumphant journeys of the Staging Posts are over. No. 19 Staging Post, on Berlin's Gatow airfield is a modest but efficient tail-piece to the long chapter of the German war. Wherever they have stopped and set up business, the Staging Posts have helped to heal and restart the flow of life. For the present, reconstruction will depend largely on transport, and one of the principal carriers will be the transport aircraft which land at the Staging Posts pioneered by the ground staffs of 46 Group.

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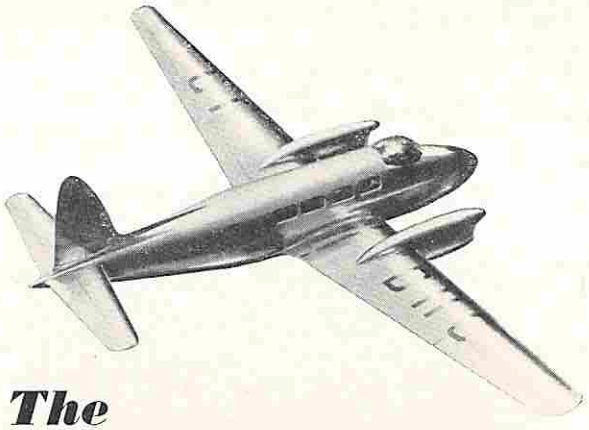

The de Havilland DOVE

DESIGN and prototype work on this new aircraft, the DH.104, have been going ahead since May 1944 and flight trials will begin this autumn.

Of the half-dozen transport projects sponsored by the Brabazon Committee and now being developed by the British industry, the de Havilland Dove is the humblest. It will seat only 8 to 11 passengers and will cruise at a modest 160 to 194 m.p.h. on engine outputs from 0·47 up to 0·75 of the take-off power. An aeroplane of this size will still perform a very useful role.

Now that the Dove prototype is taking shape a family likeness to the Mosquito is noticeable. In fact it is designed to quite a different formula, being a low-wing all-metal monoplane with a nose-wheel undercarriage. Cleanness of aerodynamic form is a feature that distinguishes it from current twin-engine aeroplanes in the smaller classes, most of which, especially the Americans', have radial engines. The Gipsy Queen engines of the Dove have practically no more frontal area than the old pre-war Gipsy Sixes that we see in the Dominies. But these Gipsy Queens are geared and supercharged and give well over 300 b.h.p.

The three-way Hydromatic propeller, in addition to about 25 degrees of constant-speeding range, can be feathered for one-engine flying and can be put into reverse pitch for use as a powerful engine-driven airbrake.

The Dove seats two pilots with dual control because some operators do need this provision, especially for training purposes. The second pilot's control column can be quickly stowed so that a radio-operator may be carried instead. For this reason the comprehensive radio set is housed in the dashboard facing this seat—an arrangement only practicable because the blind-flying panel, before the first pilot, is easily seen from the starboard seat.

The Dove has been engineered to suit really high-density traffic, use of 3,000 hours a year and even more. This has been done by insisting on maintenance features that conform to mainline standards for large aircraft—for instance, complete engine interchangeability and extremely good accessibility all round.

" Who can fail to be stirred, not merely by the beauty of the buildings and the grandeur of the view, but by the sense that we are standing where all that we value, all that we fight for in our civilisation was born?" (*See page 9*).

THE ACROPOLIS, ATHENS