

## The Independent Airline Operator and the Helicopter

*At a meeting of the Association held at The Royal Aeronautical Society, 4 Hamilton Place, London, W 1, on Friday, 6th November, 1953, at 6 p m, the following Speakers presented Papers for discussion*

I J REES, EsQ, *Technical Manager, Airwork Ltd*  
CAPTAIN BRYAN GREENSTED, M B E, *Hunting Air Transport Ltd*  
J E HARPER, EsQ, *Aviation Manager and Chief Helicopter  
Pilot Pest Control Ltd*

---

*In the Chair*

D L HOLLIS WILLIAMS, EsQ, *Technical Director of Westland Aircraft Ltd*



### The Independent Operator and the Helicopter

*By*

IVOR JONES REES, B SC, A F R A e S \*  
*Airwork Ltd*

#### SUMMARY

The paper describes some of the overseas operations which have been conducted by AIRWORK LIMITED in the last eight years and in places ranging from South America via the Middle East to New Zealand. It examines some of the problems that have to be faced by an overseas operator, and suggests the possibility of using helicopters for certain of the work which is now carried out by fixed wing aircraft. It concludes that providing certain conditions as to performance and operating cost can be met there is a definite place for the helicopter in such overseas operations.

It may be thought that a talk which is mainly concerned with the operation of fixed wing aircraft is somewhat out of place at a meeting of the Helicopter Association. My intention is, of course, to suggest how much better the same job might be done by rotating wing aircraft—always providing a suitable type of helicopter is available. At the same time we can consider some of the problems which have to be faced by the overseas operator many of which are common to both types.

Airwork Limited operate about 190 aircraft of various types. Based in this country is a fleet of Hermes, Viking and Dakota aircraft which is employed in such operations as the Safari Services to East Africa and Rhodesia, troop transport contracts and flights for overseas governments and the oil companies. In this country too are many aircraft used for flying training of various kinds.

---

\* I wish to record my thanks to the Board of Airwork Limited for permission to present this paper and to Mr LAFONE, Manager of the Overseas Division of the Company without whose ready help much of the matter would not have been available. Any opinions given in the paper are of course my own and not necessarily those of Airwork Limited.

It is, however, the overseas operations of the Company about which I shall be speaking today and by these I mean those operations which take place from bases abroad and whose aircraft only return to this country, if at all, at long intervals

#### SPECIAL CONSIDERATIONS

Aircraft on overseas operations are far from the factory where they were originally produced and the help of the manufacturer. They usually have to be maintained and operated under conditions more onerous than those that apply in the country of their origin, or those indeed that are met on any of the long trunk routes that now span the globe.

There is no kindly authority to provide magnificent airports for them nor do they have the advantage of the landing aids and all the paraphernalia of air transport with which we here are so well acquainted. Such airfields as there are are often of the most primitive kind. They may indeed have to be provided by the operator himself or by the organisation that employs him. Carved as they often are out of desert or jungle or bush these landing strips can themselves by their construction and maintenance represent a large portion of the total cost of operation. The helicopter's needs in this respect are much more modest than that of its fixed wing counterparts, and it offers also the opportunity too often denied to them of being able to land on a site closely adjacent to that at which the load is generated.

#### OPERATIONS AND MAINTENANCE

The actual flying itself often provides less problems than might be expected. It is usually confined to the hours of daylight and such problems as there are are peculiar to individual operations.

However, it should be said that it is unfortunately the case that almost everywhere where the geologists succeed in finding oil the conditions are adverse for the operation of aircraft. These places are usually in the tropics and often high above sea level. Aircraft requirements are consequently onerous and the adverse effect on performance of temperature and altitude is of great significance.

No less important is the provision of the right type of personnel, whether it be aircrew or engineers. There are attractions in working abroad. Salaries are usually higher than in this country and people abroad escape the penalty of British income tax. Crews in general are able to spend much more time with their families, they usually return to base each night—a very different state of affairs from operation on the longer international routes where crews may be away from home for long periods.

In most of the operations in which Airwork is interested abroad it is not strictly necessary from the legal point of view to employ pilots holding an A L T P licence. This is due to the fact that the aircraft are not public transport machines, or that they are privately owned or that they are too small. Large business organisations, however, such as use private aircraft fleets are inclined to take the view that the crew which fly their personnel must be those holding the highest possible qualifications quite irrespective of whether this is a legal obligation or not. When the qualifications for the various types of licences now in being were drawn up it seems unlikely that the originators of the scheme anticipated this state of affairs. More probably

they expected the most highly qualified people to be employed solely on large public transport aircraft

It can be well appreciated that for a man holding the highest possible qualifications a small air line or a privately owned fleet cannot always offer the same chances of advancement as can be found in the larger air line operating companies. For this reason the staff turn-over in such operations as we conduct abroad can be expected to be fairly high. Pilots often tend to remain for a few years to pile up operating hours before passing to other and larger organisations or to our own fleet based in this country.

The whole position is aggravated by the almost universal shortage of married accommodation and residence overseas for some considerable period is often necessary before married accommodation of a suitable sort is available. For instance, in one operation it is part of the terms of employment that the individual cannot receive permanent married quarters for the first two years of his contract. It can be well understood that this sort of thing is of no great assistance when it comes to recruitment. Undoubtedly, the ideal pilot (or engineer for that matter) for an overseas operation is a bachelor but whether due to the glamour attached to the profession or for some other reason such men are rareties.<sup>1</sup>

Maintenance work overseas proceeds at a more sober pace than at home. The aircraft fleet is usually too small to justify the large expenditure on plant and equipment that go with the high annual utilities that it is the object of all operators to achieve. Utility is indeed more usually limited by considerations other than those of maintenance. Hangar accommodation of some sort is essential but more often than not it can only accommodate part of the fleet and some work at least has to be done in the open.

A major problem is always the provision of sufficient stores and equipment to enable flying operations to proceed smoothly while avoiding the creation of large stocks. Capital investment on spares alone can often be very large but even so it is not possible to meet all contingencies as they arise. Such occurrences must be kept to a minimum and this often calls for very nice judgment.

Many components have to be returned to this country for overhaul and turn-round times when due allowance is made for shipping and other delays can soon become completely out of hand. The importance of rugged construction and long life hours for components can scarcely be over-emphasised. Any aircraft must achieve a high standard in this regard if it is to be used successfully overseas.

The same considerations by and large will undoubtedly apply to helicopter operations and it is on the solution of these problems of supply and the provision of the right type of aircraft engineer and aircrew that the success of any overseas operation must largely depend.

#### INDIVIDUAL OPERATIONS

Different operations all have their own individual problems and it will be of interest to mention briefly some of the work overseas on which Airwork has been engaged in the years since the war.

During the period 1946 to 1950 we operated a fleet of aircraft on behalf of the Shell Co. in Ecuador. The base of operations was at Shell Mera which is situated at a height of 3,500 feet on the eastern slopes of the Andes about 100 miles south of the equator. Shell Mera is on the edge of the tropical jungle which stretches eastwards from the Andes to the borders of

Ecuador and thence on through Peru and Brazil. It must enjoy one of the highest rainfalls in the world. Beyond it there are no roads and the rivers in the immediate vicinity are roaring torrents though farther away they become muddy streams meandering through the green of the tropical forest and are often large and quiet enough for small amphibians to land and take off. Behind Shell Mera lies the eastern cordillera of the Andes with its high passes and treacherous winds and with clouds that can descend with little warning. The view from Shell Mera of this mighty range of snowcaps in the early morning sun is a sight never to be forgotten.

The search for oil took place to the eastward amongst the foothills and on the lower land which stretches away towards the frontier. The work of the aircraft fleet which consisted of Bristol Freighters, Dakotas and Grumman amphibians and in the very early stages Ford Trimotors was that of supply and communication. The exploration parties in the jungle and the men engaged at the test wells were entirely dependent on this fleet for the supply of materials and food. Their only other possible source of communication with civilisation was by jungle track and by this means it often took days to cover a distance of a few miles.

This was necessarily the means adopted by the preliminary exploration parties who after being moved to the nearest landing strip or river site by air had to make their way on foot through the jungle or by canoe along the rivers. These parties, as usual, depended for their supplies on the aircraft. Small areas were cleared in the jungle at selected sites and into these food and other necessities were dropped by parachute.

Once a drilling site had been selected small parties were sent, taking advantage again either of the nearest air strip or river landing site, and work was begun in clearing a primitive runway. Supplies and equipment arrived by parachute until the first aircraft was able to make a landing. Thereafter matters developed quickly as equipment such as bulldozers and other earth removing machinery could be brought in, and the small rough strip was rapidly enlarged until it could accommodate with safety the largest aircraft that was being operated.

The loads carried by the aircraft were thus as various and diverse as they well could be. One flight might carry food packed in comparatively small parcels for parachuting while the next would carry a large piece of machinery weighing five tons or so. Cattle on the hoof were often carried to provide food at the drilling sites while sheep and pigs were parachuted to the smaller parties. Sheep seemed to accept this novel means of travel philosophically but the squeals of protest from a pig descending gracefully to the earth at the end of a parachute have to be heard to be believed!

The potential savings in time, material and cost that might have been effected had it been possible to avoid constructing these airstrips and their attendant roads and to place material and men direct on the drilling sites are immense. The distances involved were not great, most of the wells were situated between 20 and 50 miles from the road head at Shell Mera and in no case was there one more than 180 miles away.

A small helicopter capable of carrying four to six men and of landing either on the rivers or in small jungle clearings would have been of the greatest use. Preliminary exploration work would have been much easier and one of our principle problems in parachuting supplies—that of returning the parachutes to base—would have been avoided. A large helicopter which

could have taken the place of the Dakota or the Bristol Freighter would also have been attractive. Such a machine would require to lift loads of at least five tons and it and its smaller ally would have to be capable of operating in tropical conditions at altitudes up to about 5,000 feet.

Such aircraft might not be capable of carrying anything approaching these loads into the high Andean valleys (where the landing fields may be as high as 10,000 feet), but as this side of the operation was only a small part of the whole the objection is not too serious.

The operation in South America was purely concerned with the attempt to find oil but we have for many years been responsible for the operation of aircraft for two major Oil Companies in the Middle East where the problem is basically production.

It so happens that these two operations differ largely in their requirements as far as the aircraft operation is concerned. The base of operations for the Iraq Petroleum Co. is at Tripoli in the Lebaban, a green and pleasant land with crusaders' castles and other relics of the crusades in the shape of blue-eyed, fair-haired children. That for the Anglo-Iranian Oil Co. was at Abadan on the edge of the desert. The terrain over which the aircraft mainly operate is, however, much the same and apart from the higher ground of Northern Iran and Iraq it is largely desert—a hot and barren monotony with few attractions for the traveller.

The aircraft based on Abadan operated over routes which in most cases were comparatively short, their main task was the movement of personnel and to a less extent goods between the oil fields and Abadan itself. These fields were in general not more than 120 miles away. There was indeed one field in production which was situated a good deal farther north on the Iraqi border but this was only a small unit and the traffic generated by it was not large. There were also longer hauls to Baghdad and Teheran and other towns in Northern Iran.

In contrast to this is the Iraq Petroleum Company's operation where one of the most important jobs is to provide means of communication, transport and supply for the small isolated communities at the various pumping stations along the pipe lines. These pipe lines run from the fields in Northern Iraq to the Mediterranean, a distance of between five and six hundred miles. In addition to this the aircraft serve the exploration areas of various subsidiary Companies near the Persian Gulf and a producing area in Qatar. Thus the total length from east to west of the territory concerned is at least 1,500 miles.

It happens in both these operations that it is in the majority of oases easy to lay out suitable landing strips for the aircraft to use. This is not so true of the A I O C fields in the foot hills and the exploration areas as it is of Iraq, but in general it can be said that the cost of the airfields is not a large part of the total cost of operation.

The helicopter would, therefore, have to be strictly competitive in operating cost if it is to displace fixed wing aircraft for this sort of work. An exception to this rule is during preliminary exploration. For instance, during the time we were operating at Abadan there were recurrent requests for helicopters to be used for examining the strata on vertical rock faces—a job well nigh impossible to achieve in any other way. Unfortunately, the said rock faces were always in mountainous terrain subject to strong vertical air currents—not an ideal state of affairs even for a helicopter.<sup>1</sup>

During the last two years we have been concerned in the operation in New Zealand of Straits Air Freight Express Ltd. This Company operates between the North and the South Island under contract to the State Railways and carries an assorted quantity of freight of all kinds. Apart from the service across the Straits this Company also operates additional services north into the North Island and south into the South Island.

The aircraft in use are two Mark 31 Bristol Freighters and they carry a maximum load of about six tons per trip across the Straits.

While the distance from Wellington to Blenheim is only about 40 miles the Freighters have to operate from a landing field at Paraparaumu 25 miles north of Wellington, there being no aerodrome nearer to that town which is suitable. This state of affairs may be improved shortly by transferring the base of operations to Rongotai which is actually in Wellington itself.

This operation is an arduous one. Bad weather is the common experience across the Straits and due to this and the short haul and low altitude of operation the fatigue life is one of the shortest on record for an aircraft of this type.

Although the intended use of an aerodrome right on the doorstep as far as the North Island is concerned will help matters considerably, it might be possible to make out a case here for the use of a really large helicopter which could operate from railhead to railhead. Such an aircraft would have to be strictly comparable in operating costs and capable of lifting loads at least as great as those of the present Freighter.

I have not attempted in this brief review to cover all the overseas activities of the Company but only those most likely to be of interest to this Association. I hope that what I have said will serve to give some food for thought, and that in the discussion that follows we may hear something of possible solutions to the problems I have mentioned.