

COMFORT IN AIR TRAVEL

THE Royal Aeronautical Society gave a dinner at the Royal Aero Club on February 7, which was followed by an informal discussion on "Comfort in Air Travel." Introducing the lecturer, Air-Commodore J. G. Weir, C.M.G., C.B.E., F.R.Ae.S., the Chairman, Colonel the Master of Sempill, A.F.C., A.F.R.Ae.S., said that the recent historic flight of Air-Commodore Weir to Cairo in the "Hercules" air liner had occurred to him as giving a suitable opportunity for discussion on the important subject of air comfort. It was for this reason that the experience and opinions of the lecturer would be most valuable.

Air-Commodore Weir first expressed his diffidence of tackling the subject when approached by the Chairman, but he found that his assent had been taken for granted and so he had had no option or choice. He thought, as a result of his recent flight in the "Hercules," that the most important factor in the desire for air comfort was security. That was the finest component of the many issues that would make flying popular. He had found from a study of passengers that they all regarded the sense of security as the primary need for their ease when flying. Factors in the issue varied according to the passengers. There were certain main points. The most significant of all was the question of "bumps." These, he thought, provided the worst element that civil aviation had to cope with; and the trouble was that, up to now, they had been taken for granted as inevitable, as acts of God, as it were, for which there was no remedy. But he did not agree with that. He thought it most worth while to make a research into the problem, to tackle it as an aeronautical question to be dealt with by ourselves. He did not see why it should be impossible to find an altitude or an air route over any air lines where the minimum of "bumps" existed. Passengers were confirmed air travellers after flying in lovely weather, but after a bumpy trip they were flying's greatest enemies. The next important point to consider was the power unit. In aircraft with a single engine there always existed at the back of one's mind engine failure. They could not rid themselves of that subconscious fear, and it therefore intruded on their sense of security. Those who had flown over the sea would appreciate that feeling. With two engines the fear was mitigated to some extent, perhaps, but not totally by any means. It was not the ideal anyhow. Now with three engines, where one was virtually a standby, the worry was largely removed. The multi-engine necessity was forced on us by the fact that we had not the engine units of sufficient power to do the job required. The cardinal principle in future aircraft design was duplication of the power unit. In ships, he said, duplication of the power was an essential qualification before a ship was allowed to proceed to sea; and this should be the same with aeroplanes. The reaction on engine design to-day was that engines became scrapped very quickly because a higher powered engine immediately superseded them. He thought that in the future designers should select the number of units required for their particular machines.

The next important question on comfort in the air was the size of machine. Space was very impressive and conducive to the passenger's sense of security. The luxury of the limousine should be of the highest class, but it was not the end of the development. Airships gave passengers their great feeling of safety because of the mere fact that it was possible to walk about them. That sense of freedom from confined space made all the difference. He hoped that it would be possible to give some similar freedom in aeroplanes. Perhaps there could be a promenade deck on the top of the fuselage. Its mere presence there, although it might not be used by the passenger, would none the less reassure him to some extent. He would feel that he was not restricted and hemmed in. The size of machines, then, would go a long way towards the comfort of the traffic.

Then we came to noise. The lecturer said that he appreciated the enormous difficulties that arose in this problem. A mere silencer on the engine was no good. A lot of money would undoubtedly have to be spent on research, but he was afraid that the elimination of noise as far as possible was essential. He referred to the great improvements made in this respect on the railways. He travelled, he said, from Glasgow to London every week, and he noted that the regular travellers always chose the modern railway car, whereas the casual travellers made no particular choice. That was because the regular passengers knew from experience of the obvious improvements in the springing, smooth running, and minimum of noise of the new cars, and they would have

no other—which showed that the public preferred comfort in their travelling.

Air-Commodore Weir then made comments on the small owner-pilot machines and their comfort. First, with regard to seating capacity. He, personally, thought that the tandem arrangement was not nearly so comfortable as the side-by-side seats such as those of the Blackburn "Blue Bird" light 'plane. This method made flying more sociable. It was possible to hold hands, for instance, which was rather nice! Another improvement would be if the engine was not in front of the fuselage. He remembered the pleasure of flying in the early Farmans, with their front open nacelle and the engine at the back. There was no slipstream, no oil fumes sweeping on you, and the view was perfect. There was a tiny Caproni machine with these advantages, he remembered.

He then made mention of minor points in the "Hercules" machine in which he recently flew to Cairo. First, it was the finest machine he had ever flown in, but he did not like the petrol pump being positioned in the fuselage. From the word "Go" they all knew it was there. He understood, however, that it was but temporarily in that position and that in the Hercules MK. II it would be removed. He thought that the particular design of chairs was not a success. They were like dentists' chairs with their head-rests. The other passengers did not like them either. He did not suggest the head-rests should go, but they wanted improving.

The Commodore next referred to night flying, of which, he said, he had had but little experience. Capt. Hinchliffe beat their machine on the way out and they landed two hours after dark. In the future he thought there would be more night flying, and it was therefore of fundamental importance to have every comfort, so that passengers could sleep peacefully.

The Discussion

The Chairman then rose and said that it was fortunate so many representatives of the military and civil side of aviation were present, as their opinions on the suggestions advanced by Air-Commodore Weir would be most helpful. Sir John Higgins had mentioned that he would be glad of any ideas on the subject.

Col. Bristow thought the whole question at the bottom of safety and comfort in air travel was money, he said. Inevitably the industry had their eye on profit and loss. They could not do otherwise. The use of three engines was a very serious thing from a financial point of view, for it meant carrying as much as 50 per cent. power in reserve. At this stage of progress he thought that the Government must decide whether they must compel Imperial Airways to run on a hard and fast system of profit and loss, as the primary policy, or whether they should regard safety first. The industry could not possibly incorporate all these factors of safety and comfort today and survive. The Government must decide the issue. They must advance more money if they wanted safety. On the question of silence in engines, if we insisted on that it would only be possible to create it at a loss both financially and in power. You got away from efficiency. There were various ways of accomplishing silence, including an ungeared propeller, reducing the compression load, and taking all wiring out of the slipstream. He did not quite see the predominant disadvantages about bumps. It was a matter that rested with the pilot largely, and he thought the Imperial Airways pilots were the finest pilots in the world. They had done more for aviation than anyone. And those early pilots who took off from Cricklewood with a fully-loaded machine deserved the D.S.O.

Mr. Handley Page: "Why?"

The trouble about chairs, said Col. Bristow, was that the designers of them never sat in one long enough. He referred to a certain chair which was all right to sit in for a short time, but when someone sat in it once and read a paper for half an hour he was so stiff on rising that he had to be helped across the floor.

Various enquiries: "What was the paper?"

The solution, said Col. Bristow, of the whole problem of comfort lay in more generous treatment by the Government.

Maj. Mayo said that he placed bumps in the air in the same category as roughness at sea, and they should be regarded in the same way. During the last hundred years had there been any improvements in ships to overcome roughness at sea? There was none, neither in design nor navigation. We had got to face bumps naturally as we faced rough seas. He did not agree, therefore, with finding smooth running paths in the air. The only remedy for bumps would lie in larger machines. These would give more comfort. They would increase in proportion to the increase of passenger traffic. He agreed that security outweighed all other considerations. It would bring more traffic which, in turn, would be followed by larger machines. He, too, referred to the analogy of the ship. A 50,000-ton liner was far more comfortable to sail in than a smaller ship. Sea sickness in them was rare. The reliability of the large aeroplane was greater. He did not see why in time we should not have any number of engines. The more there were the greater the reliability. With 30 engines, for example, one could face a failure in flight of 20 per cent. Three engines, he said, did not provide the utmost security and efficiency. If one failed it represented a loss in power of 33½ per cent. The "Hercules" machine was highly efficient. It had been designed successfully for adaptation to varying climatic conditions, particularly where the temperature was high and the density low, as prevailed where it recently flew to. It could face the contingency of the failure of one engine, but not all three-engined machines could do so. With a maximum load they could just hold their height when one-third of the power was cut out, but they had no reserve for climbing. Further advancement in the multi-engine stage would bring easy riding and reliability. He was not altogether agreed with some opinions expressed on the trouble of noise. He thought that 75 per cent. could be attributed to the propeller