

WEST COAST STOP-OVER . . .

you get down to the mathematics of the short- and medium-distance runs it is very difficult to see that there is a place for the small jet. Prospects that the small jet will be built are pretty skinny. I doubt if enough of them can be sold. . . ."

This was strong stuff coming from someone who has no axe to grind and who, until he bought the Electra from Lockheed, had done business with Douglas since the DC-2. I must say it was as pleasant a way as any in which Warren could have got me properly conditioned for turbopropaganda yet to come.

Warren then took me to meet his chief, Lockheed's director of sales promotion, Bert Holloway. We talked mostly about *Flight* ("a magazine," he made me laugh by remarking, "in which I sometimes detect a pro-British flavour"), and in particular about the November 23 issue, which he had wryly opened at our article on Lockheed's high-altitude mystery machine the U-2.

We were joined at lunch by Leonard Schwartz, who is Lockheed's director of commercial sales, and the driving force—with the accent on the drive—behind the marketing of the Electra.

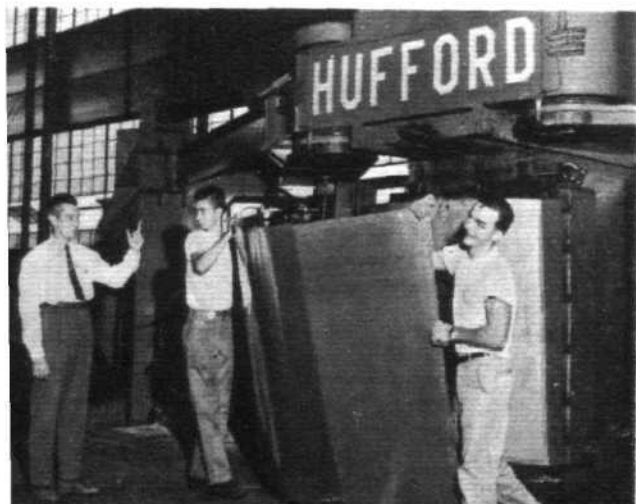
The view he took of the short/medium range jets was crushing in its mildness: "I find the case for them," he said, "rather difficult to understand"; but of course they had a limited application for people who could afford to run them. This had more effect on me than a more elaborate debunking of the rival product would have done. I don't know whether other people feel the same about this as I do, but I don't like to be subjected to a table-pounding tirade upon the disadvantages of the opposition product. This kind of salesmanship only gets people's backs up, and the more elaborate and smirking it becomes the more it weakens its own case.

Schwartz explained how the Electra had begun as the answer to the need for a transportation system (I had expected that phrase to find its way into the discussion sooner or later) and how the project had begun as a short/medium-hauler to key in with the big jets. Then the customers wanted more range as well to tide them over long-haul-wise in the interim period before the big jets came in. So Lockheed tried tip-tanks, then the wing got bigger, until eventually they found themselves with a "better airplane for both worlds"—with more wing area and more tankage. I didn't query this, but I did wonder whether you really can bake a short-haul cake for eating over long-hauls as well. But this was to be answered for me later by Mr. Hibbard.

Schwartz went on: "Now we are finding that the foreign airlines are looking at the Electra as a long/medium-hauler. You've got to remember," he said, "that there are a lot of airlines who just want something for the class of work their Constellations and DC-6s are doing." I knew what he meant: big jets aren't needed by what one might call the second-class carriers of this world, where much of the potential business lies. "But what do you mean by a this-or-that-hauler?" he asked. "I don't know, and I don't think anyone really does. But 0 to 700 miles is roughly how we aim the Electra; it's a proposition beyond 1,200 miles, and it can do coast-to-coast as well."

I asked him about United, still the only one of the U.S. Big Six still uncommitted to a short/medium hauler. "They are worth watching," he said. "It might be the DC-9 or the Electra—I hope the Electra." United's president Mr. Patterson, he said, had always been very conservative, and had rarely done anything "different"—except four-abreast coach seating, which hadn't worked. They might do something different in their purchase of medium-haulers. The implication was obviously that United might buy DC-9s as partners for their 30 DC-8s, and I got the impression that United's decision would be a very significant one.

I asked about Electra delivery date, which I knew had gone back a few months. He said they would fly in February 1958 (previously October 1957) with first deliveries to Eastern in October 1958. American, until now the first to be due for delivery (in August 1958) would be second, and would start to get their aeroplanes as from January 1959. The reason: American were prepared to accept the delay incurred by the so-called living-room-look (about which more anon). I thought also to myself that Mr. C. R. Smith will not mind in the least letting his old friend Eddie Rickenbacker get the aeroplane "route-debugged" first.



Thousands of Electra parts like this panel for an exit door frame are now coming off the machines at Lockheed. Full-scale assembly began on January 4, and the first aircraft will be completed in December and flown in January, 1958.

I asked Mr. Schwartz whether he thought that the development programme for the Electra—eight months from first flight to delivery—allowed too small a margin for delays. His answer was straightforward enough: "We think we shall do it." I gathered that the programme involves the use of six production aeroplanes, and that the scale of systems rig-testing and engineering mock-ups (see later) is unprecedented in Lockheed history. He was "very happy" about the way Allison were getting on with the model 501 D-13 engine, which was now really piling up the flying hours in C-130s. A D-13-engined 1049 would fly in July, and the aim was to amass—with C-130 flying included—800,000 engine hours before an Electra delivery. About the Tyne he said: "We are going for this engine, and I believe it will extend the market for the Electra considerably, especially in sterling areas."

A most enlightening lunch. Even more enlightening was the hour which ensued. Warren had arranged for me to see Mr. Hall L. Hibbard, Lockheed's senior engineering vice-president, another man whose writings and quotations I have come to heed and to respect. He is responsible for Lockheed's big technical decisions, and although there is a very strong business side to Lockheed's top management, I got the impression that the opinions expressed by Mr. Hibbard—who although an engineer first has a keen sense of business, too—are the ones that carry most weight around Lockheed.

He has an unassuming, almost diffident warmth of manner, and an infectious enthusiasm—rare among engineers these days—for his aeroplanes. He talks in a broad, "the way I see it" sort of way, now and then getting down to a detail which shows how he has looked at the core of the problem as well as at its rounder terms. He spoke of the Electra in its present form as the continuation of the Constellation and DC-6 class; how its range ability was sufficient to handle the class of work these aeroplanes were doing now, but with the improvement in economy that every new aeroplane must show. Its "prime region" however was short- to medium-haul. What that was precisely he couldn't say—nobody could say—"but up to 700 miles is the region we are pointing at with the Electra."

Electra Mk 2?

For the first time in their history, he said, Lockheed were considering a transport development which was down on range—a new version of the Electra, with the greater capacity of a pulled-out fuselage but with less wing structure. "We are trying out airline reaction; as with Douglas, half our commercial sales are foreign, and we never decide on a move unless we are certain it is right for the foreign airlines." He would not say yet how the new version, if he decided on it, would be phased in with production of the standard Electra, but he did recall how the airlines had said "you've gone crazy" when Lockheed decided to drop the 649 for the 1049—a decision which proved to be right.

I asked about the Tyne, feeling that the Electra development to which he had just referred brought the aeroplane even closer in conception—big capacity for best short-haul economics—to the Vanguard. "We are definitely going for the Tyne," was his reply. "It is a dandy engine and it makes a dandy airplane—a better airplane." As for the Vanguard, there was no doubt about the market for it. It was a "fine airplane," and Lockheed had the greatest respect for Vickers. The Electra and the Vanguard were different, but not that different. "I personally am very glad of the competition—it keeps us on our toes. It's something we've always had from Douglas; it's done us good, and I believe it's done them good, too." The same applied to the engine competition between Allison and Rolls.

I asked when we might expect to see Lockheed in the pure-jet airliner business. His reply was to the effect that, though Lockheed were conscious of having been out of it until now, I wasn't to imagine that this state of affairs would continue. "The wonderful thing about the aviation industry," he said, "is that no sooner do you say about a new development 'Well, that's it for a while,' than the doors open and you see the next stage all set and in place." Lockheed were looking at the supersonic airliner, and everything was falling into place just perfectly. "I say that the industry—and I hope it's Lockheed—will have a prototype flying in eight years' time, and in operation four to five years after that." He considered that Mach 2 was the bottom limit: "I should say 2.7 is about right." It would, he said, "go some ways."

I can't adequately describe the thoughts that these words, confidently and almost casually spoken, put into my mind. I think they went something like this: "I'll accept all that only from the firm which made the F-104." I asked about airport and thermodynamic problems. "We would have plenty of power for take-off," he replied, "plenty of wing for very-high-altitude cruise, and certainly jet flaps [blown flaps] and reverse thrust for landing." He did not think there would be an airport problem, and V.T.O. did not enter into his supersonic thoughts. "As for the thermal barrier, sure it's right there, but we'll just fly above it." He mentioned a 100,000ft cruising height, and I knew what he had meant when he said it would go some ways.

"We think everything is fitting into place just perfectly," Mr.