

Mr. Vareed Thekkekara Varghese, was the veteran behind establishing the Engine Design Bureau (EDB) in HAL. He was the first Chief designer of EDB and the man who successfully initiated the design and development of PTAE-7, the first turbojet engine designed and developed in India, to fly. With a degree from Cranfield University and over four years of work experience in Rolls Royce, UK, he was the one who successfully motivated, inspired and led a team of young engineers to perform and deliver for the nation.

In an exclusive interview with Mr. G. Harikrishnan, one among those young engineers who was recruited by Mr Vareed in 1971, Mr Vareed spoke about his journey through HAL. Here are excerpts from the interview:

Tell us a little bit about your background. What did you do before joining HAL?

I was born in Irinjalakkuda, Kerala, did my schooling in Kerala and then my intermediate from St Joseph's college, Tirichinapally. After completing my BA (Mathematics) from Thevara College, I was selected to pursue a degree in engineering at BHU. During my engineering days, I developed a passion towards aeronautics and propulsion which inspired me to apply for the DCAE (Diploma of the College of Aeronautics) course in Cranfield University, UK. Fortunately I was selected and since I belonged to a commonwealth country, I got my course sponsored by way of commonwealth grant.

After graduating from Cranfield University, I worked for about a year in Cranfield and then joined the design and performance department of Bristol Engines, Rolls Royce in 1956 and had the opportunity to work on a few engines which were being developed during that time.



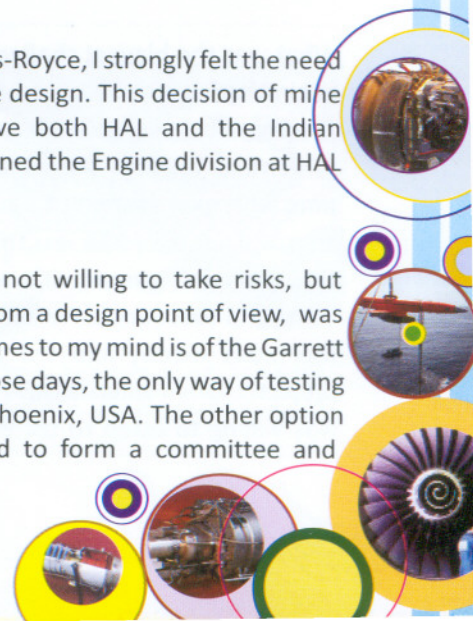
Mr. G. Harikrishnan interviewing Mr. T. V. Vareed

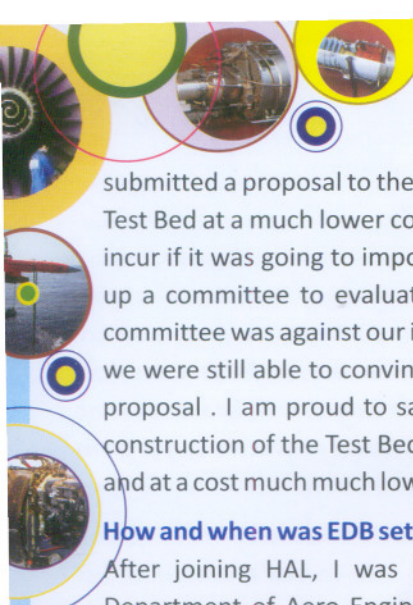
When and how did you join HAL?

After working for a period of three years at Rolls-Royce, I strongly felt the need to return to India to pursue a career in engine design. This decision of mine brought me to HAL. I was selected to serve both HAL and the Indian Government but opted to join HAL. Hence I joined the Engine division at HAL in July 1959.

What was your experience after joining HAL?

At First, I observed that people here were not willing to take risks, but expected immediate results, this especially from a design point of view, was not possible. One particular example that comes to my mind is of the Garrett Engine Test Bed that we had developed. In those days, the only way of testing a Garrett engine was to send the engine to Phoenix, USA. The other option was to build a Test Bed here. We decided to form a committee and





submitted a proposal to the management for construction of a Test Bed at a much lower cost the company would have had to incur if it was going to import the Test Bed. Management set up a committee to evaluate our proposal. Even though the committee was against our idea of designing the Test Bed here, we were still able to convince the management to accept our proposal. I am proud to say that we were able to finish the construction of the Test Bed within the deadline allotted to us and at a cost much much lower than importing the Test Bed.

How and when was EDB setup?

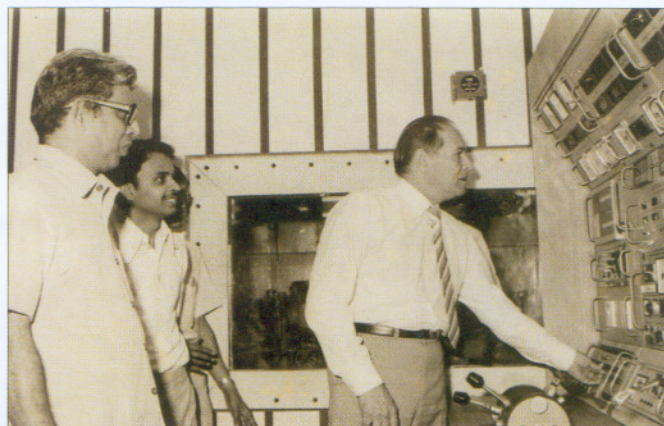
After joining HAL, I was in charge of Liaison Engineering Department of Aero Engines for a while, because I had the prior experience of working on some of these engines while I was in UK. Once during a discussion with Mr. P M Reddy, then GM, Engine Division, he asked me to try and develop a small jet engine, and hence I gave the management a proposal for developing a jet engine at a budget of about 2-3 lakhs. For this purpose, we formed a group called the Engine Design Group and recruited about four people directly from IISC, Bangalore. Thus the Engine Design Bureau was born in early 1960.



Mr. T. V. Vareed explaining PTAE to Air Marshal L. M. Katre, then Chairman, HAL

What was the biggest challenge your group faced right from beginning?

The biggest challenge we faced was the attitude of the people in general towards design activities in India. Most of the time when we submitted a proposal to the management for approval, we asked for less than the actual cost and time for a similar project abroad. Still we always had to hear the term 'Time and cost overrun' which meant that we were asking for too much money and too much time for completing the project. Even when PTAE-7 project was launched no one was willing to listen to us. But Dr. Raja Ramanna, who was



Visit of Air Marshal M. S. D. Wollen, Chairman, HAL to Test Bed

the Scientific Advisor then, was so impressed with the presentation we had given, when he came to Bangalore, that right after the meeting he told that the project was sanctioned and that we would be allotted the required funds.

Enlighten us on the projects you have worked on during your career in HAL?

I have worked on liaison engineering of almost all the engines that were under production in Engine Division during those times, like GARRETT, ORPHEUS etc and also have worked on indigenous engines like HJE-2500, PTAE-7, GTSU-110 and various other Test Bed projects.

What problems did you encounter while developing test-beds at EDB?

As I mentioned earlier, the most difficult problem that we faced was the attitude of people in general towards design. They believed that design would not succeed in our country and were only interested in getting immediate results. This was one of the main problems we faced during development of Test Bed for Garrett engine. I remember another incident when we were testing the HJE-2500 engine while design was being developed. We wanted to test the engine to know the thrust it produced, but were unable to get a slot in Engine Division for testing, for various reasons. The Americans had established a facility during World War II, for testing their piston engines. This facility was behind BEML factory and this place was surrounded by Casuarina trees, which are best known for their natural sound proofing. With some minor modifications to the test bay, we were able to test HJE-2500 engine.

What stands out in your mind as significant determining points in your career in aerospace?

There were many occasions dear to me. To name a few,

those would be

- a) The establishment of EDB.
- b) The launch of HJE-2500 project.
- c) Design and development of PTAE-7 project and
- d) Design and development of Test Facilities.

Do you regret not having done something that you always dreamt of doing?

I wish I had started some design consulting agency after my retirement from HAL. It would have been a nice opportunity for people like me and my colleagues who retired from HAL, to spend time amongst things which we liked most. After I retired I practically did nothing which I still regret.



Proving of flame tube of PTAE in Test Bed

Do you think indigenous designing and production of aircraft engine has been successful in India?

The answer to this question is both Yes and No.

Yes - because we have successfully developed PTAE-7, the first indigenous engine to fly and I hear that it is also being type certified.

No - because we still have not been able to develop an engine for LCA. Our LCA's are still flying with GE 404 engines, and I believe that, recently guidance has been sought from some engine manufacturers for completing the delayed development project.

Today HAL is a 2 billion \$ company. How do you feel?

A 2 billion dollar company has enough resources to launch its own projects. The management should be ready to invest money in R&D activities and should encourage quality work. Results may not come as soon as expected, but they should understand that these research activities require long term planning and vision.

Tell us something interesting about you that most people don't know.

I love farming. I own a coconut farm in Kumbalkode, Karnataka. I had started the farm during my days at HAL. I used to travel to Kumbalkode to visit my farm every Sunday and personally used to overlook everything right from selecting and planting new seeds to watering the plants. Today it is spread over 38 acres and it gives me good returns and also satisfaction on what I was able to achieve.

What advice would you give someone joining HAL right now?

You are joining an organisation that has the potential to be one of the best in the field of aerospace. Work whole-heartedly to convert this dream into a reality. If you find faults with the system, don't over react but suggest ways to change it, so that things can be done more efficiently or effectively and then you could hope for the best.

Now that you've retired, how do you spend your time?

Well, I'm 82 years old and an asthma patient. So there isn't much that I can do now. I don't usually venture outdoors because of my illness. So I usually spend my time indoors either reading books or watching television.

Laughs



Do you know?

The sentence "The quick brown fox jumps over the lazy dog," uses every letter in the alphabet.
(Developed by Western Union to Test telex/two communications)