A Lifetime in Aviation

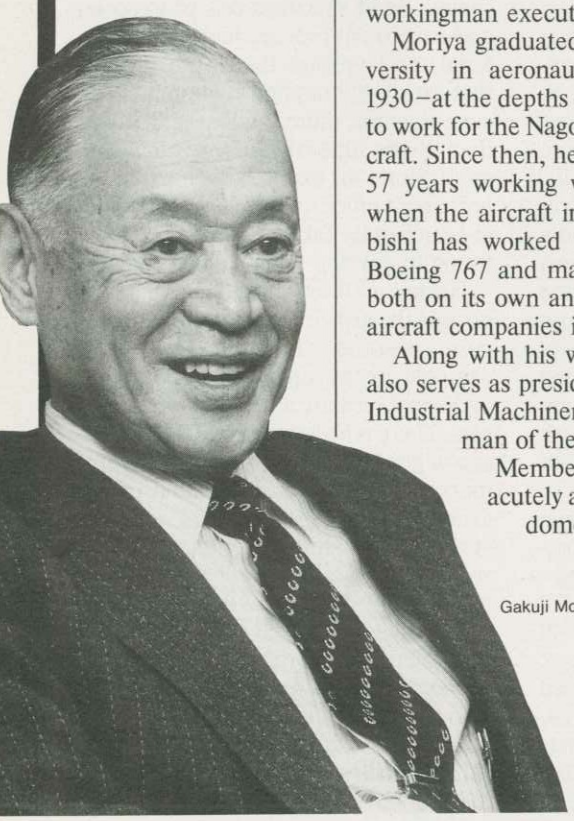
Interview with Gakuji Moriya, counselor of Mitsubishi Heavy Industries, Ltd. by Shozo Hochi, editor of the Journal of Japanese Trade & Industry

Mitsubishi Heavy Industries is Japan's largest manufacturer of heavy industrial equipment, making everything from ships and nuclear power plants to aircraft, satellites, power systems and industrial plants. Although it was forced to scale back some of its operations by the oil crises of 1973 and 1979, the company still has annual sales of ¥2 trillion and remains undisputedly the largest heavy manufacturing firm in Japan.

Gakuji Moriya was appointed president of Mitsubishi Heavy Industries in May 1973, only half a year before the first oil crisis erupted. Responding to this crisis, he streamlined operations, diversified into a number of new fields and promoted a strong research and development effort. When the second oil crisis broke out in 1979 (Moriya had been appointed Mitsubishi Heavy Industries chairman in 1977), his reaction was swift and calm, instituting further operational rationalization with engineering precision. Taking the helm just as the period of rapid growth was drawing to an end, he has needed all of his grit to pull the company through. Indeed, grit is perhaps the term that best exemplifies this workingman executive.

Moriya graduated from Tokyo Imperial University in aeronautical engineering in early 1930—at the depths of the depression—and went to work for the Nagoya Works of Mitsubishi Aircraft. Since then, he has spent nearly the entire 57 years working with airplanes. Since 1952, when the aircraft industry was revived, Mitsubishi has worked on the YS-11, the MU-2, Boeing 767 and many other famous airplanes, both on its own and in cooperation with other aircraft companies in Japan and overseas.

Along with his work for Mitsubishi, Moriya also serves as president of the Japan Society of Industrial Machinery Manufacturers and chairman of the Japan Consulting Institute. Members of both organizations are acutely affected by the export slump, domestic demand sluggishness and the forced industrial restructuring that has been sparked by the yen's appreciation.



Gakuji Moriya

Broad of shoulder from his schoolboy and student days as swimmer and rower, he retains the fire that has made him so successful. Although nearly 80, he still exudes an almost tangible air of leadership.

Question: *You don't look like the typical octogenarian.*

Moriya: I should hope not. I'm only 79! Actually, I've always been pretty healthy. I was born in Okayama, and I remember learning to swim in the Asahi River when I was only seven or eight. At the time, we were still using the Japanese traditional stroke, but later we heard about the freestyle crawl, backstroke and other modern swimming strokes. When I went to Okayama First Middle School, they had a swimming team and I signed up for it right away. Later I got sidetracked and ended up on the rowing team, but I started out as a swimmer. When I went to university, I was on the rowing team as a matter of course. In my junior year, we even won the intercollegiate championship.

Q: *It sounds like a good background for a businessman—endurance, teamwork and perseverance to achieve a goal.*

A: It was certainly a valuable experience, and it taught me a lot that I needed to know later about the importance of preparation and practice, how to approach a task, teamwork and getting along with other people.

Q: *What was Mitsubishi Aircraft like when you went to work fresh out of the university?*

A: Primitive. That's the only way to describe it—nothing at all like it is now. But remember that this was 1930 when international travel was done by ship and it took three weeks to get to the United States and one or two months to Europe. Mitsubishi was making a reconnaissance plane then with a top speed of 220 kph, and even our fastest fighter only flew 250 kph—about as fast as the *Shinkansen* bullet train. Aeronautical engineering was a young science and aircraft was a new industry. And we were still using wooden frames with canvas skins! As we advanced, we moved up to steel tubing. True, there was some use of aluminum alloys starting about then, but it was still a new field. Much of the previous experience was irrelevant as we worked to create today's modern aircraft industry.

Of course, the industry has made rapid ad-

vances since then as aircraft speeds rose to 300, 400 and even 500 kph. By the end of the war, Mitsubishi was building some of the fastest planes in the world for the Japanese military—including the *Zero* fighter for the navy, the army ground-attack plane, the army Ki-46 reconnaissance plane and the Ki-67 heavy bomber. We even had one—the Ki-71 reconnaissance plane—that only flew in prototypes. All of these flew 500–600 kph.

Q: *What prompted you to go into aeronautical engineering?*

A: The Wright brothers had their famous flight at Kitty Hawk in 1903, and the Japanese army did its first flight in 1907—the year I was born. I have always felt that aviation and I were born about the same time and grew up together, so I guess you could say it was fate. There was no special reason for me to major in aeronautical engineering at Tokyo Imperial, but I did. I remember that there was very fierce competition for the nine slots they had open—and that I wanted to do something new. My father was an eye doctor and I have an uncle who practiced internal medicine and ran a hospital. The family wanted another doctor, but I left that to my older brother. There were some outstanding math and science teachers at my high school, and I guess that gave me that background and interest I needed for aeronautical engineering.

When I first went to work for Mitsubishi Aircraft in Nagoya, they had a little airport at the Oe plant for test flights. This airport was later moved to Kagamigahara in Gifu Prefecture, and we used to put the planes together in the hangar and then take them out for a test flight. I remember carting parts from Nagoya to Kagamigahara—and I mean carting, with oxen-drawn carts.

Q: *Mitsubishi has worked mostly on military planes, but didn't you also build the Kamikaze for the Asahi Shimbun—the one that set a world speed record in April 1937 by flying Tokyo to London (15,357 km on a southerly route) in only 94 hours, 17 minutes and 56 seconds?*

A: Yes, we did. We had built this as a prototype of the Ki-15 reconnaissance plane for the army, but they lent it to *Asahi Shimbun* for the race. Along these same lines, the *Nippon* that flew around the world across the North Pacific to Alaska, down to South America, across the Atlantic to Africa, then up to Italy before turning right to India, Thailand and home—a total of 52,886 km with a total flying time of only 194 hours in August–October 1939—was the prototype for a bomber that we built for the navy.

Q: *Is it true that the concept of quality control was first brought to Japan by Mitsubishi in connection with the F-86 Sabre jet?*

A: We were mass producing aircraft parts during the war, but there was no systematic quality control and everything had to be inspected and the defects weeded out after they came off the line. And toward the end, we got so that inspection couldn't keep up with production and parts were piling up waiting to be inspected. It was an impossible situation. After the war, we found out that statistical quality control had been used for all of the parts and weapons used by the occupation forces.

Anyway, in December 1955, when I was in charge of Mitsubishi's Aircraft Division, I visited the North American plant outside of Los Angeles in connection with the F-86 for the Japanese Air Self-Defense Force. The thing that most impressed me there was that they had detailed QC manuals, that people were using precisely specified equipment and following very exact work procedures. They even had a QC supervisor check the work as it went along, and the system was set up to eliminate defectives before they occurred. After I got back to Japan, we started all over again from the ground up to assure quality control every step of the way. We improved the equipment, revised the work procedures for better standardization, trained our people better and did all the other things that were needed. I remember we even went to our suppliers and helped them get started in quality control. Once QC was started in the aviation industry, it spread rapidly to automobiles, electrical equipment, machinery and the whole gamut of industrial fields. Today, of course, it is the foundation underlying Japanese industrial technology.

Q: *One of the other famous planes that you have been involved with is the YS-11—the first postwar plane that was designed and built purely in Japan, but it was not really a commercial success. Was this because you built only about 170 of them?*

A: This was our first postwar attempt at a purely commercial passenger craft. Until the YS-11, the only experience we had was with military planes, and we were a little optimistic in thinking that we could build a good plane and it would sell. It was a good plane, but when it came time to actually sell the thing, we didn't even know how to approach the domestic market, let alone the international market. And there were a number of cases where we sold or leased the YS-11 and ended up having to write them off because we couldn't collect. I still think it's a great little plane, and there are a lot of them still being flown, but it never got off the ground financially.

Q: *In 1973, the Civil Transport Development Corporation was established, with yourself appointed chairman, to cooperate with some American and Italian firms in building Boeing 767s. Mitsubishi, Kawasaki Heavy and Fuji Heavy were in charge of the body, the wing fittings, the doors and a number of other parts, and when they were all brought together they fit perfectly.*

A: That was a very rewarding experience—but think what it would have been like if they hadn't fit. Not a single piece had to be reworked for assembly. We were especially glad to be part of this because Boeing was a leader in the world market and the 767 was selling well.

Q: *As chairman of the Ministry of International Trade and Industry's Aircraft Industry Council, what do you think the future holds for the industry?*

Aviation and I grew up together.

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A: Things are moving very fast in the aviation field, figuratively as well as literally. We have new electronic equipment, amazing alloys and other technical advances to work with. Today we have computer technology that will keep a plane headed in basically the same direction while allowing the pilot to maneuver up or down, left or right, at will. This is the control configured vehicle (CCV). We have special coatings that will keep the plane free from detection by enemy radar. And there is so much more on the drawing boards. It's just impossible to predict what the future holds even as little as 10 years from now.

Q: *You were CEO for Mitsubishi Heavy Industries for eight years—four as president and four as chairman—before moving to counselor in June 1981. Could you tell us how Mitsubishi Heavy Industries managed to weather the two oil crises during this period?*

A: This was just after more than a decade of very rapid growth in the economy, and we had a lot of trouble identifying and cutting the organizational fat. But when we got down to it, there was a lot of fat to cut. It was a historic period of cutting back and getting leaner. We found ways to conserve on energy and other resource costs, to get the same quality for less money and to trim our work force, not with "you're out" firings but with reassignments and retraining for optimum utilization of everyone's potential. When the shipbuilding operations nosedived, we developed new expertise in new fields, including nuclear power plants and coal liquefication, modified procedures and equipment to work smarter and made a major effort in R&D.

Q: *And now you have another industrial crisis on your hands as the yen's appreciation has savaged Japanese competitiveness in most of the old-line export industries. I say "you" because you are president of the Japan Society of Industrial Machinery Manufacturers and chairman of the Japan Consulting Institute, a group of general industrial contractors.*

A: When oil prices collapsed, this tore the bottom out of one of our best markets—the oil-exporting countries—and this damage has been compounded by the yen's appreciation. As far as I'm concerned, the question is not how we are going to get rich in this climate—it's how we are going to survive.

I'm fed up with constant harping on Japan's supposedly closed markets.

There are a lot of people who complain that Japan has a trade surplus, but I assure you that the plant exporters are not part of that particular problem. Companies and countries buying industrial plants from Japan are getting modern production technologies that they can use to improve their own standards of living for years. So we want to continue to stress exports. In fact, we are lobbying the government for increased assistance to the developing countries, a system of export insurance and other improvements. The society's members are trying to work together for the common good, and we want to export the most modern equipment we can. It's a terrible market in terrible times, but it's the only market we've got, and we're determined to have a go at it. We have sent study missions all over the world looking for new markets and new areas of need. We're going to tough this out if it kills us.

Q: *Were the technical symposiums that you held in Beijing in September 1985 and Shenyang last November part of this effort?*

A: Actually, the society had sent some survey teams to China earlier and held several symposiums on pollution-prevention equipment, and they were so well received that we thought it would be a good idea to follow up with some other technical symposiums. Hence the symposiums in Beijing and Shenyang. They were very well received and there were lots of questions. The Chinese have a great hunger for information and a thirst for technology, and I am hopeful that we'll be able to do more symposiums such as these. We are also in constant contact with the rest of Asia, the industrialized West and other countries as well.

Q: *Have you run into much trouble on account of the pressure from the United States and the demands that Japan open its markets?*

A: There is a lot of really groundless and even frivolous talk coming out of Washington these days. We're glad to discuss any legitimate complaints they might have, but I'm a little fed up with this constant harping on Japan's supposedly closed markets. There are very few barriers to market entry, and access is unrestricted to the vast majority of Japanese markets. Of course, I know that they also have political and economic problems of their own in the United States, so I won't say that America is 100% wrong and Japan 100% right; but if they'd spend as much time trying to be competitive as they do complaining, they might find out that most of their complaints are unjustified. Where the United States has good products, they sell just as well in Japan as anywhere else. Given my background, aircraft and aircraft engines come to mind, but I'm sure there are more.

I am hopeful that American manufacturing can get competitive and stage a comeback—just as I hope the old-line Japanese heavy industries can regain their competitive edge too. These are also very important industrial sectors—just as important for the United States and Europe as for Japan. So rather than complaining about what they think we might be doing behind their backs, they should be looking at what we are doing on the shop floor.

In Japan, university graduates are sent to work on the factory floor where they help to improve the processes and develop a ground-up understanding of the company and its products. Even people who go into design or research are in contact with the line workers. I think this is one of the reasons Japanese manufactured products are so good—because line workers and university graduates work together to make them better. I keep trying to explain this to my European and American friends, but it doesn't seem to be getting through. ●