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Interview with Klaus-Dietrich Flade: From fighter pilot to astronaut to Airbus test pilot

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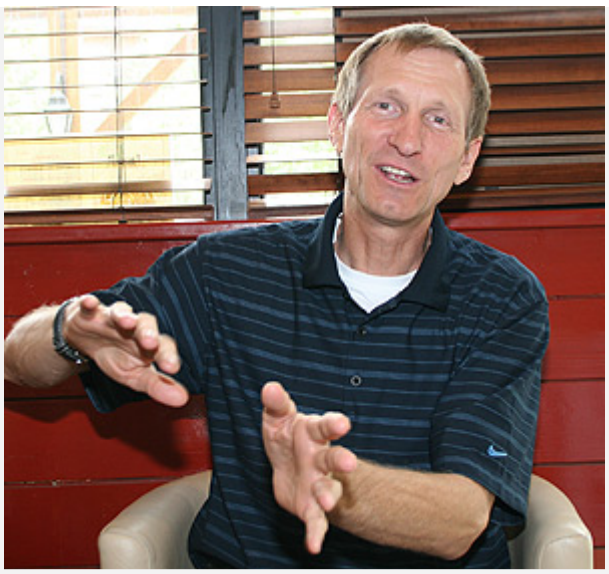
In 1992, Klaus-Dietrich Flade became the fifth German to fly to space. His mission, Mir '92, lasted for seven days. Alongside scientific experiments, it also involved taking the mouse that starred in the German television programme 'Sendung mit der Maus' (literally, 'The Programme with the Mouse' – renamed 'Mouse TV' for English-speaking audiences) into space. Klaus-Dietrich Flade is now a test pilot for Airbus in Toulouse. In this interview he talks about his trip to space, his present job and his reasons for returning to flying.

Interview by Lena Fuhrmann



Klaus-Dietrich Flade during the interview

What prompted you to apply for a job as an astronaut?

I was lucky enough to be asked as early as mid-1985, before the first newspaper advert for astronauts had even been published. At that time I was an air force pilot and one of our generals had asked the human resources department to look for suitable candidates to fly to space. I was asked directly by our squadron commander, right after a difficult mission for NATO in a Tornado, "Mr Flade, do you want to become an astronaut?" And I said, without a moment's hesitation, "Yes." So I was placed on the shortlist and was ultimately selected. The lesson I drew from that was: if an exceptional opportunity presents itself, simply say 'yes'. You can always reconsider later. But first of all say 'yes' like you really mean it. That's how you become an astronaut.

Did your flying experience help at all in your training as an astronaut? After all, you are battle-hardened and not easily ruffled.

Candidate astronauts must take many different tests. One of these is a psychological test conducted at DLR in Hamburg, for example, which I have taken five or six times in the course of my career. You have

excellent specialists there who sound out each candidate for any weak spots. There are similar tests for would-be pilots. Before that, a comprehensive health check is performed; you need to be physically fit.

I suppose smokers don't have much of a chance?

Absolutely right. You can't smoke up there in any case.

Your mission to the Russian Mir space station lasted only seven days - I imagine your days were very tightly planned without taking much account of the physical stresses associated with a flight into space.

They were indeed. Because time was so short, the planners were also unable to take account of the fact that one of us might feel sick occasionally. The experimental task rate was set to 100 percent from the beginning, whereas other missions typically start at 60 to 70 percent and then increase slowly to 100 percent over several days. Fortunately I was spared any space sickness and was able to work my way through all of my tasks. During the ascent into space, the fluids in the body begin to move and rise from the legs to the upper body and head. This is why the first experiment – the continuous measurement of intraocular pressure – began straight after the launch to the Mir station.

Normally, gravitational acceleration – the g-force that we experience on Earth – pulls our body fluids downwards and they would collect in our legs, except that our connective tissue exerts a counter pressure that resists this. This effect also exists at the beginning in weightlessness; that is at zero g. The fluid is pushed upward by the pressure that is still applied by the connective tissue. This means that excess fluid collects in the upper body, and is then gradually excreted. This fluid retention can be defined by measuring the thickness of the skin, which leads directly to the next experiment. It explains the 'puffy face' effect – and is better than an expensive face-lift!

Flade shortly before his space flight

What sleep times were planned?

Sleeping times were from ten at night to six in the morning. But sleep was the last thing on my mind – I also wanted to discuss things with my colleagues of course, look at the view and explore the station. On one occasion, I experienced an entire orbit around the Earth 'live', but Munich was hidden under cloud cover.

How did you find weightlessness, when you floated for the first time?

Very cool! It starts as soon as the rocket engine propelling the capsule is shut down during the first orbit. Everything begins to float all at once – I had my first checklist in my hand and suddenly it was almost torn out of my hand because it wanted to float. Since I was still strapped in at that point, I only

really experienced weightlessness when I undid the harness. The highlight was, of course, when I floated once the capsule had docked with the station. That is really fascinating – suddenly you can fly for 10 metres! Of course, I first had to get used to it; the first time, I rubbed along the wall and all the devices fixed to it were swept off. But a colleague was floating along behind me and gathered all of them into a bag. And of course being weightless makes you act like a child – we used the vacuum cleaner to fly like a witch on her broomstick. And a colleague shaped me into a ball and spun me round and round.

You carried out experiments in medicine, biology and materials science. Did these different fields pose a problem for you? After all, you had to get to grips with completely new subjects.

No, the preparation for that was good and comprehensive. Of course I was not used to taking my own blood – we unfortunately didn't do this experiment, but we were prepared for it. During the first training session I still turned white as a sheet, but it became easier with practice. Besides, my backup, Reinhold Ewald – who flew five years after I did – and I were a very good team, we prepared together.

You were one of the first 'westerners' to be trained in Star City. Sigmund Jähn, one of the first Germans in space, preceded you.

Sigmund Jähn opened all the doors for us at that time, supported us and helped us if there were communication difficulties. As I already mentioned, the preparation period for the mission was rather short and our knowledge of Russian was correspondingly poor. But we learned the language relatively fast through 'learning by doing': notes were taken during all the lessons, which were of course held in Russian, and we spent the evening translating them with a dictionary. This meant that after seven months I was able to communicate quite well in Russian.

The mouse from the programme 'Sendung mit der Maus' also flew with you. How did that happen?

DLR organised things for the mouse to come along with me. I was able to do the broadcast my own way and tried to present everything so that it was easy to understand and comprehensible to children. Of course we made the mouse float. The broadcast was very well received and after the successful flight the mouse came back to Earth with us. In Cologne I gave it back to the team from the programme 'Sendung mit der Maus'.

Liftoff with Flade on board

Do you have any anecdotes to tell?

When I was in space I was of course interviewed from Earth and before my flight I was given a note with the names of the interviewers. So an interview was agreed with, among others, the current affairs programme 'Tagesthemen' beside which stood the name 'Christiansen'. I had in the meantime spent one and a half years in Russia and the name was not familiar to me. Unfortunately the videoconference did not go as planned and I had only an audio link. So I said: "Hello? Hello! Mr Christiansen?" When he heard that, my colleague on the ground, Reinhold Ewald, whispered into my private radio link "*MS* Christiansen!"

How did flying become such a passion?

After my exams at school I actually wanted to build engines for Porsche. But before I could do that I had to do my military service, and signed on for two years. During this time I qualified as an aircraft mechanic. The incentive to apply to become a pilot unfortunately came from a somewhat arrogant pilot in the air force. At some point, I thought, "You can do that too." The German armed forces offered me a training plan in which I was first to become an officer, acquire a private pilot's license, then complete a university degree and finally train as a fighter pilot. I got through the selection and also overcame all the other hurdles. In addition, because my father was also a pilot, the environment was familiar to me since childhood.

Which aircraft did you find most fascinating?

The Lockheed F-104 Starfighter was the aircraft I liked flying best. These aircraft are small and fast – if somewhat dangerous. The Starfighter was also known as 'the widowmaker'. My father was one of the first Germans to fly this aircraft, as long ago as 1960. During a training flight the engine failed – the Starfighter only has one – and the plane crashed. Fortunately my father was able to eject in time and came back down to Earth with his parachute – uninjured.

You are a test pilot with Airbus, what exactly do you do?

I work as an experimental test pilot. At Airbus, the test pilot is involved in most new developments from the first stage – that distinguishes us from the test pilots of other companies. If our experiences are integrated from the beginning, it may well save costs later if technical changes subsequently become necessary. Test pilots can therefore optimise the development path and in this way are involved in the creation of the new aircraft until the end. And we, of course, also subject the finished product to comprehensive tests. It is also one of our tasks to go directly to the airlines and familiarise ourselves with their requirements by flying with them and learning about their procedures at first hand. In this way, we acquire important information for the development of future aircraft. My specialty since about 2000 has been mid-air refuelling, that is refuelling an aircraft in flight using another aircraft. I am very satisfied with Airbus as an employer, my only complaint – if one can call it that – being that I can no longer fly small jets.

Flade after his return

What is a 'typical' day like in your job?

Each one is very different. We might undertake flights in brand new aircraft, which have just come off the production line and are being flown for the first time, such as the A380 for example. Or we do a test flight with a customer and deliver the aircraft if there are no complaints. Another aspect is flights to test new systems that are to be implemented in already existing aircraft. We have already flown the Rolls-Royce engines for the A380 on the A340, for example. We also carry out simulator flights; we will soon test an emergency egress – that is, we will see how the cockpit or cabin can be evacuated most quickly.

As a test pilot, you fly aircraft to their limits. Have their been any dangerous situations?

When you drive your car, it can also occasionally become a bit 'hairy', but the more you experience such situations the more relaxed you become about handling them. Test pilots receive an exceptionally comprehensive and specialised training and are particularly trained for risky situations. The analysis after a flight is also useful. I always try to anticipate situations when I'm flying, but something can also occur during a flight – during my time as a military pilot, my jet once suddenly caught fire. The instructor sitting behind me could no longer see anything through the smoke and so I had to make an emergency landing on a small runway.

Which test flights do you find most exciting?

The test flights that are concerned with what is known as 'handling' – that is to say that during them a multiple of body weight might be reached or a specific curve might be flown. The issue is not the curve itself but the precision of the controls. Flights, then, which are not routine. These are necessary with each new aircraft – when the flight envelope is to be extended, for example. When I release a particular operational envelope I must of course have tested the aircraft beyond it. In addition, we have clear safety restrictions. It is not possible to fly the loop with our aircraft, for example. But then, a commercial pilot is not going to do that anyway – what would the passengers say?

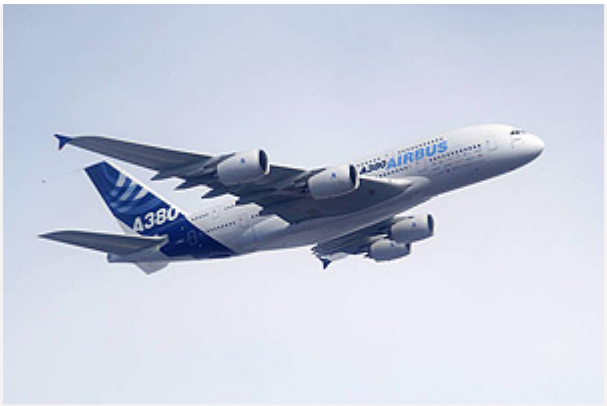
Which Airbus aircraft have you participated in the development of and given flying instruction for?

I was intensely involved in the development of the stretched -500 and -600 versions of the Airbus A340. Then came the A380, the A400M military transporter and several tanker aircraft based on the Airbus A330 and A310. The latter model had, by that time, already been on the market for a long while and I am one of the few who are still allowed to fly this vintage old-timer today. After all, it is what

might be called a classic aircraft. Current Airbus models all have fly-by-wire controls; the rods and steel cables used previously have long been a thing of the past at Airbus.

Do you still have links with the DLR?

Yes. As you know, DLR has bought an A320, the ATRA (Advanced Technologies Research Aircraft) research aircraft. A contract was agreed which allows Airbus itself to continue using this aircraft for research purposes, as well as DLR. In this way, both organisations reduce costs.



The Airbus A380 that Flade flew while working as a test pilot

What is a typical Airbus test flight like?

There is no such thing. On each occasion there is a flight programme, which is put into a logical time sequence. We have a list of limitations and characteristics of the aircraft. An engineer draws up a test flight card and the crew is named. An hour before the flight, there is a comprehensive briefing in which the objectives and implementation are clarified in detail. In addition, the airspace must of course be cleared for it – here in France we have military controllers who create space for us or divert air traffic. We then fly the tests in sequence as planned. Possibly critical flights are also monitored by onboard telemetry. This means that the flight test engineer has his own recording of all the data that he requires for the flight. In addition, all the data that are recorded during the flight are simultaneously transmitted to a ground centre. Here, experts monitor the flight and can evaluate the current situation for possibly critical values using the transmitted data. After landing, there is a debriefing in which there is a broad discussion of the course of the flight as well as any problems. Then, experts analyse the data and draw up a flight report.

Why did the astronaut return to being a test pilot? Why did you not remain in spaceflight?

A spaceflight of that kind is pure euphoria – you become the magnet and everything else around you is iron. You are proud and are lauded and praised for your achievement. All of that is fascinating and, of course, also very enjoyable, but one day there comes the realisation that others have done the same thing before you. And they have also climbed down from their pedestal at some point. So then I thought that I didn't even need to climb the pedestal. In my present job I have found a good compromise, I don't always have to be 'Number One'. I don't have to fly every first flight either; my colleagues can do that too. I have become a bit more relaxed about that in the meantime. But to return to the astronauts once more; even if we don't perceive it in that manner, all people on Earth are and remain astronauts on 'mother-ship Earth' – even if we don’t have to squeeze into a small capsule.

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