

Newsletter 2001

Edition No.4

Dear Readers, dear Friends of the Reinhardt Abraham Memorial Foundation,

Time flies by: It was the 1st of November 1995, five years ago, when Reinhardt Abraham, the then CEO Technical of Lufthansa passed away. He did enjoy an outstanding reputation for providing substantial stimulus to the further development of civil aviation – and also for promoting the young generation associated with aviation in academia and industry. In memory of Reinhardt, Boeing and Lufthansa initiated the Reinhardt Abraham Memorial Foundation (RASf) which was formally established only half a year later on June 13, 1996.

I am very glad to be able to say today that the Foundation grew up rapidly and successfully since then to a level unexpected for this point in time – thanks particularly to Boeing's Trainee Program opening to the RASf students and the financial support through the many friends of the Foundation.

At year end we will have „moved“ altogether 18 students in both directions, 11 TUB students (Technical University Berlin) to Boeing, 2 to the University of Washington (UoW), and 5 UoW students to TUB.

As it stands right now we are able to support 12 students per year. It is our philosophy to pursue quality before quantity and to keep the necessary administration down to the today's minimum which implies in combination with the financial constraints this capacity.

A last comment concerns our Newsletter: So far we thought it of prime interest to have the students report by themselves on their experiences not imposing any restrictions on them in order to preserve their „emotional freshness“. In the meantime, however, the scenes they encounter are rather known and, therefore, we are going to condense those reports successively to a brief „job accomplished“ summary. Of course we will keep on reporting RASf news of general interest to our friends and donators. We hope that this meets your expectation as well.

I thank you again for your valuable support and wish you also on behalf of the entire RASf Team all the best for the New Year 2001!

*Dr. Gerwin Dienger
Chairman of the Board of the
Deutsche Lufthansa Berlin-Stiftung*

Student Exchange Programm (SEP)

The Summer in Seattle...

...at the University of Washington as a visiting graduate student from March to September 2000.

By Robert Goehlich.

The Preparation

To give you a rough impression what does it mean to be the first exchange student in the novel exchange program of the Reinhardt Abraham Memorial Foundation, here are some numbers: my preparation period started 13 months in advance including 107 emails, 8 postal mails, and 2 faxes.



Seattle at night.

The University

Established in 1861, the University of Washington with nearly 35 000 students is a major cultural force in Seattle. The 700-acre campus sits on the shores of Lake Union, located 10 km northeast of the Seattle city center. I liked very much to stroll through the lovely campus, especially in spring when the trees are in full bloom and paint the campus with brilliant colours.



The Campus of the University of Washington

The Classes

For Spring Quarter I attained the classes Air & Space Vehicles in the Department of Aeronautics and Astronautics and Managing for Organizational Effectiveness in the Department of Business Administration. In contrast to Germany you have really to work hard to register for classes: the magic word is called STAR (Student Telephone Assisted Registration), which is a touch-tone telephone system. Funny matter is that you have to proof your measles immunization before you are authorized to begin using STAR.

The lectures are similar organized to my former high school classes: the teacher tells you what book to buy, which pages to read and when to finish the readings. The students seem to be helpless from the German point of view. But on the other side the lectures are very impressive: using all types of multimedia is standard as well as active participation by carry out experiments or role-playing. Also lecturing in the open air during spring is common place. In fact, you can really feel that the university is like a commercial market.

The Master's Thesis

For Summer Quarter I investigated in my master's thesis entitled "Space Tourism - Economic and Technical Evaluation of Suborbital Space Flight for Tourism" supervised by Prof. Reiner Decher. Suborbi-

tal space flight for tourism can be defined where customers pay an initially high price (space travel services advertise ticket prices varies between US\$5000 to US\$100 000) to go on a quick ballistic flight in a spacecraft into space, get a few minutes of weightlessness and then return to Earth, without reaching orbit. I examined suborbital vehicles that are in the development stage and matched their capabilities. Therefore, I determined whether the investigated vehicles are technically feasible by estimating the rocket engine propellant mass and maximum altitude. Result: The flight performance of reaching suborbit is critical for two out of six vehicles. Additionally, I verified whether the launch vehicles are economically feasible by estimating the ticket prices for a realistic scenario in the near future. Result: The calculated ticket prices vary between US\$300 000 to US\$1100 000. This means that the currently practiced marketing strategy of offering tickets for US\$100 000 or less has to be changed to be profitable in future.



Suborbital Vehicle for Space Tourism

The Accommodations

During my first week I stayed in the house of Barbara, my host family, organized by FIUTS. FIUTS is an organization to help cultural exchange between Americans and foreigners and I recommend everybody to join it when study at the university.

The half-year I lived in a four-bedroom apartment located in southwest campus near a beautiful trail. My roommates were from China, Morocco, and USA. We de-

veloped a cleaning-cooking schedule, which means that every week one guy is cleaning and one guy is cooking a typical dinner for all of us. So I learned also to use a Chinese rice machine, get trained to eat original very-very-very spicy Chinese food, and learned to be patient due to the fact of 2½ hours of preparing Chinese food.



Chinese Dinner

The Leisure Activities

The low-cost sport facilities on campus are amazing, which I used as often as possible: canoe, tennis, swimming, golf, badminton, running trail. The nice lakes around the university district invite you also for a sailing tour. One day, during our sailing tour, we want to sail from Seattle to Tacoma, but things changed: our outboard motor, which is necessary to go safely through locks, broke down. A nice boatswain borrowed us his outboard motor and it looks all-fine except...to the moment when the motor fell into water. We could fish the motor out of the water, but flooded with water, we had no chance to start the engine again. Now we had crashed our second motor. Unfortunately, there was no wind any more, this means to go back to the harbour by paddling. Anyway, this was less a sailing tour, but more an adventure trip with a lot of fun.



Playing Tennis on Campus

The Excursions

The surrounding of Seattle has lots of things to do. With other international students I went on a trip to the Tulip Fields, Mount Rainier, The Olympic National Park, Vancouver, and Victoria.



Tulip Fields

The Closing Words

In overall, I am very grateful for the opportunity to live the half year in Seattle and to learn more about the American and foreign culture. The realization of this would not have been possible without the contribution, flexibility, help, and time of the following persons and the Reinhardt Abraham Memorial Foundation itself:

Prof. Reiner Decher, Dr. Gerwin Dienger, Mr. David Fenner, Prof. Manfred Fricke, Dr. Alfred Heilhecker, Mr. Jürgen Kreth, Prof. Roger Lo, Ms. Marianne Reichow, Mr. Peter Struck.

Trainee Programm (TP) I

A six month traineeship at Boeing Commercial Airplane Group, Seattle

By Jasper P. Corleis.

'v1 - rotate!' Could I believe it? I was sitting in the observer seat in the Cockpit of a Boeing 777-300 Test Airplane taking off from Paine Field, Everett. My task would be to observe all test conditions and to note every change of our configuration for a later check of the new installed flight data recorder. But now we were taking off, swooshing through the thin-layered clouds over Seattle to go for a 4 hour flight which would take us over Oregon and California and in a wide loop high above the Cascade Mountains to Moses Lake, a remote airport in the desert-like surroundings of eastern Washington.

Ulrich and I had arrived in Seattle on May, 19th and we were picked up at the airport by Michelle Colby, our very nice Human Resources contact who immediately tried to give us a Seattle crash course. So after I got into my Hotel room, not knowing in which part of the city I was I realized that the Boeing adventure was now really about to begin. Both of us were given rental cars a week before our work would start. These first days gave us some time to find an apartment (which Uli and I decided to share) and to buy a car, (which I realized I would obviously need), and to get familiar with Seattle and surroundings. Michelle helped us a lot with necessary proceedings like the mandatory drug test, the application for a social security card and all questions about all further particulars.

I started my work at Boeing on May 23rd in Airplane Maintenance Data Engineering / Avionics (AMDE) which at this point of time was to merge with Maintenance and Ground Operations (MGOS) to Mainte-

nance Engineering Technical Services (METS).

On my first day my supervisor picked me up at the lobby of the Customer Service Engineering building in Duwamish and gave me the runaround through his department. I was amazed about the friendliness and openness of my manager and my colleagues. I felt welcome and integrated from the first day on, something that I should experience throughout my whole stay. Wearing a business suit and tie on the first day, I assumed to be overdressed and expected the dresscode to be just a little bit more casual. But I was really surprised that the only dresscode there was, was to wear whatever you felt yourself most comfortable in (something I could perfectly agree with).



The task of the group I became part of was to produce and update the Maintenance Manuals and the Manuals for unscheduled Maintenance such as the Fault Report Manual (FRM), Fault Isolation Manual (FIM) and the Dispatch Deviation Guide (DDG). Most of the work in this department was the intermittent revisions for the different models of 737 to 777 and change requests mainly originated by customers.

Here I made my first experiences with the American way to work, basically how work was done.



Since I had worked for 2 ½ years as a working student at BMW Rolls-Royce Aeroengines, I already was familiar with meetings, telecons, or English as the workplace language. But now most of the working environment was new to me. A typical Boeing Office was a Cubical arrangement around either 4 or eight desks. I found it was pretty easy to get used to it - since there was much more communication going on than I had experienced in Germany. Meetings were held very spontaneously within the cubicals and for everybody to follow.

When my supervisor, Steve Hasegawa, asked me what I would like to do, I probably surprised him with more wishes than his department could fulfill. I really have to thank him for what he did. I asked a lot of questions about departments, procedures or the organisation and he was always able to either provide information or to hook me up with the right people. So I had the chance during several shifts (i.e. nights) to take a look at the work of the Rapid Response Center or to take part in the 777 Conference and the complete Division Awareness Course for Field Representatives. Steve was so nice to lease me to the Human Factors Group of MGOS. Until I left for Flight Test I worked on the accident report database, to create a database of maintenance related accidents leading to hull losses between 1993 and 2000.



It was amazing to have access to all the Boeing files, reports, flight data recorder data and voice transcripts of all of the accidents. My job was to go through all of the short reports and to decide if further research had to be made if a Maintenance error contributed to or caused the chain of events.



But my real desire was to fly the airplanes. So in early August I started my work in Flight Test where I worked for the remaining 4 months. Working here was completely different. Located right at Boeing Field I basically walked through hangars to get to my office. During the first days the 767-400 which was to go on the World Tour was the first thing I saw. From the window of my office I could see the whole Boeing Field, Mt. Rainier and all the traffic going to or from Seatac Airport. Every departure or arrival was announced via loudspeakers - this place was wonderful!

I was in the Avionics/Navigation/Communication and Auto Flight Department of Flight Test Engineering (FTE) which is a division of airplane validation and flight operations. My department actually consisted of four people: my Supervisor Byron, my Lead Danny and my colleagues Duc and Ray. The Mission statement of FTE was to perform flight tests to provide information for design development, design confirmation, certification and safe, efficient operation of Boeing airplanes. That included both experimental and production airplanes.



On my first day at FTE I was allowed to participate in a test of a 737-700 SATCOM System which I found amazing. And on the next day my lead asked me if I already had written the test summary. This was real work from the first day on! I very quickly became a fully integrated member of our team, had my own responsibilities and my own tests.

Usually a test was kicked off by an EWA, an Engineering Work Authorization which defined the scope of the test. Out of this EWA it was my responsibility to create a Test Item Plan consisting of a risk assessment, a configuration setup, test prerequisites and the test conditions. If the test was leading to a FAA Certification it required a Test Specification submitted to the FAA. In close contact with Test Operations a test date was set. At the test itself my responsibility as the Flight Test Engineering Analysis Engineer was to witness

the test and to summarize and report its result to my group, operations and the FAA. Even though my colleagues had right from the beginning put a lot of trust me, it even grew. So I was allowed to go on test flights not only as the responsible FTEA Engineer but as a representative for my lead as DER (Designated Engineering Representative) who is allowed to sign test results on behalf of the FAA.

And finally, I was allowed to conduct two 737NG and one 757 certification flight tests as the Test Director, responsible for the complete flight testing.



All this was the formal work on flight test. But there was a lot more to experience. The beauty and the amazing diversity of the landscape I could see during the flights was fascinating.

Seattle is almost enclosed by the Olympic Mountains in the west and the Cascade Range from northeast to southeast. In cloudy weather the clouds often remain hanging in this trough, in which the mountains work like a natural obstacle. Higher than the mountains of the Olympic Peninsula are the cascades, with the three mountain tops of the Mt. Adams, the Mt. Baker and the highest, Mt. Rainier. Seeing the exploded Mt. St. Helens (or the remains of it), and knowing all of these mountains are actually volcanoes, the view over an almost closed cloud cover with the three mountain tips rising above is totally impressive .



Here, I had been able to experience circling at nearly the speed of sound and with a 45 degrees bank angle, and to do high speed descents with sink rates exceeding 10.000 ft/min. The professional, humorous and relaxed atmosphere on board was something I will remember forever.

During the flights I have seen most of Washington, the Cascades, Glacier Peak, the whole Oregon coast, parts of California, Montana, Idaho and Oregon. I could see the big forest fires in September, developing thick grey-yellow clouds of smoke rising high to the Inversion Layer, looking like still photographs of a giant explosion. I could see Lake Chelan meandering through the dry areas of eastern Washington reflecting the sunlight along our way heading west and the high forests of the Olympic Peninsula which in November were suddenly covered by the first snow looking like strewn with powdered sugar.

Once, I was picked up at Boeing field and flown up to a test in Everett with a small two engine Beech. We did a flight with a 767-400 that day, crisscrossed Washington and came back late at night. I will never forget the flight back from Everett in that small aircraft going back to Boeing Field over the twinkling city. Since the test was time critical I was writing the report back in my office at 11 p.m. and could not help thinking that I would have done today's work even for free.

I am very grateful to everyone involved in this wonderful program. It made Seattle a home for me for six months. It made some colleagues and neighbours good friends and it allowed me to experience some of the most exciting moments in my aviation career.



I am very thankful also that during this time so much confidence was set in me. Both in confidential discussions and in flight tests with low or medium risk level I was accepted as a full team member which strongly impressed me.

I feel committed to further support this program, like all other participants I have spoken with. Making students of the TUB better acquainted with the Program is certainly a first step. Also, more transparency of the current and future situation of the Exchange Program should be provided. Information on "who is when where?" should be given to all participants of both TP and SEP to foster communication and provide 'buddies' for the time of the exchange and beyond.

Thank you again!

Trainee Programm (TP) II

"Working for N^o 1..."

By Ulrich Heine.

...is what one of my colleagues told me at the beginning of this incredible experience. It was his reason to work at The Boeing Company. In the following six months I would learn what was meant by him.

But I should start from the very beginning. Totally unaware of what would happen, Jasper and I left Frankfurt in a – what a question – Boeing 747 heading west over Vancouver to Seattle. Michelle Colby, our first Boeing contact, met us in Seattle at Seatac Airport. We were brought to a hotel in Renton. The next days were full of data acquisition and Seattle Times classified ads reading. We had to find a car and a place to stay. Michelle supported us a lot by providing information and useful hints. We also were very pleased about the "survival kit" filled with dishes and some other utilities, a legacy of our predecessors. Without the hotel room and a rental car provided by Boeing in the early stages, it would have been really difficult to make the first steps in the new world.

Since Jasper and I decided to become roommates we had to find an apartment in a location convenient for both of us. Finally we found a pretty nice flat near the university district. This flat was located about six miles north of downtown and within walking distance to a beautiful little lake called Greenlake. Our place turned later out as for us best possible location. It was in the middle between Everett, which is about 20 miles to the north, and Renton, in the southern part of Seattle. After about three weeks of getting everything set up and recovering to "normal" life I could focus on my work.

Work or hobby?

Sometimes it was hard to decide if I was at work or somewhere I would have gone anyway in my off hours. But I had the impression I was not the only one who felt like this. Let me briefly describe what kind

of working environment I experienced at Boeing.



It is amazing how a company of this size gets the work done in spite of all the difficulties. Probably one explanation for that is the general working attitude, which could be best described by three words: respect, responsibility and motivation. Respect in my case because I have never felt as an intern, that I have always been considered and treated as an colleague – someone who was new and had to get up to speed - but as a co-worker. In fact I really learned a lot. After a while I recognized how people relied on me and I felt the same responsibility as my co-workers in developing a particularly safe product. Suddenly, I realized how deep I have been integrated in my group. Like my environment, I was personally involved in Boeing's business and I experienced what the term "Team Boeing" is all about. Having an idea of solving a problem ten minutes before I fell asleep at night, gave me the feeling that the environment and the job could not have been better. The will to keep the ball rolling and the readiness to invest a lot of time and personality, which I observed in my co-workers' attitude, can only be called a high degree of motivation. Without question, I enjoyed this working climate.



To become a little bit more precise, I was assigned to the Avionics Engineering Department. My group took care of Boeing's autothrust systems. One remarkable advantage was that this system is not as enlarged as other aircraft systems. This gave me the opportunity to get an overview of the complete system rather than a part of it.

I want to address only some of the working tasks. I got in touch with the update and certification process of the Boeing 737-600, the -700 C and the latest model 737-900. One of the highlights regarding the 737-900 program was to observe its B1 flight, the maiden flight of the first model. Due to the fact that this type of aircraft has never flown before, only two test pilots were allowed on board. All involved engineers were present in the telemetry room of the Flight Test Center. We were connected by intercom, video camera and real time data to the aircraft. It is hard to describe what kind of mood was present, but the tension was incredible. Somehow I had the feeling I was participating in a Space Shuttle launch in Cape Canaveral, Florida.

In the following time I worked on the system of the Boeing 747-400. We had to validate the Pratt and Whitney 4062 thrust limits function in the Flight Management Computer (FMC), which was implemented by Honeywell. I developed a test program and a process to automatically test the takeoff and go-around thrust limits for the PW4062 engine.

The latest and most challenging task was the work on Boeing's 777-300. The job could be divided in three different phases: isolation of a given issue, developing an improvement and the testing and validation of this change. Therefore I also got the chance to familiarize myself with the Aircraft Information Management System (AIMS) and had quite a few hours of testing at the 777 test bench at Boeing's laboratory. Somehow the 777 became my favorite airplane. It is simply indescribable to sit in a 777 engineering simulator conducting automatic landings with hands off.

It is hard to say which part of my job was more interesting - the discussions with Honeywell's or Smiths Industries' representatives regarding logic changes in the developing phase, conducting tests and handling the different test benches or working with pilots who had to judge the new behaviour of our system. But one part of my work at Boeing I will surely never forget: my first flight test in a Boeing 747-400. This flight reminded me of my first solo flight in a sailplane, the same excitement and the same euphoria as we took off. Fortunately on the following flight tests and certification flights I could suppress my feelings and focus more on the work onboard, but to be honest to take at least a short look at the passing landscape, Mount Rainier, or the Cascades as we flew to KMWH (Moses Lake) was always mandatory.

What can you do in the Seattle area in order to recreate from all this aircraft stuff?

Fly an airplane! Even at the risk of getting an overdose of Airplane Related Activities (ARA) – we all like abbreviations – I started my instrument flight training at Regal Air in Paine Field.



Even though it took most of my free time, I noticed within only the past few months the benefit of approaching the system "aircraft" from the pilot's point of view and learned what kind of environment pilots have to work with. But as you can imagine, that was not the only reason.



To fly in clouds solely by reference of the instruments or to break through clouds for landing on an Instrument Landing System (ILS) glide path and to see the airport coming up right there where you have expected it, is one of the most challenging and exciting tasks I ever worked on. For me it was more than a payback for the invested time and money.

But for sure there also exist other things in Seattle besides flying. It would go beyond the scope of this report if I had to list all recreation possibilities provided by the Seattle environment. I want to pick my most impressive adventures in this nature.

Since I was born in Friedrichshafen near the Lake Constance in the very south of

Germany I already had some hiking experience in the Alps, but what I saw here really renewed my interest in hiking. To walk along on one of the hundreds trails in the vicinity of Mount Rainier was really fun. I was always curious about what was waiting for me behind the next corner – perhaps a bear, a cougar or a bald eagle? Somehow I was not too angry that it was only a deer that unashamedly came along. With its 14,410 ft in elevation and due to similar conditions, this dormant volcano is also used as a training mountain for Mount Everest. You could spend weeks hiking there and not have seen everything. The Mount Rainier area is about 120 miles south of Seattle. On a clear day it looked kind of unrealistic to see Washington's Kilimanjaro dominating Seattle's horizon.

On one weekend I participated in a boat trip. We explored the area of the San Juan Islands, which are about 70 miles northwest of Seattle. We had the luck to see a killer whale family. Part of a pod of about 30 whales approached the boat within five feet – it was breathtaking. A few sharks and some seals were also around. It was really something special to see this wildlife in freedom – an unforgettable day.

Another must-have-seen area is the Olympic Mountain Peninsula, which is about 150 miles west of Seattle. Speaking of the Olympic Mountains I want to mention the Ozette Trail. It is a five mile trail located on the north west end of the peninsula. This trail guided me through dense rainforest to the most westerly point of North America. I really appreciated that there was no road access at all to this viewpoint. Everyone had to walk in order to earn this beautiful view over the Pacific Ocean.



To complete the Compass Rose I headed east as I joined my co-workers for a camping weekend at a campground near Lake Wenatchee. This brought me to an area on the east side of the Cascades about 170 miles from Seattle. It was already fall and the maple trees had changed their leaves to a bright red. I need not tell about the recreation value of waking up in a more than silent nature setting and walking along an untouched lake on a trail before breakfast.

The amount of nature and wildlife I experienced here within the last six months was more than I saw the first 25 years of my life. Thanks for all the maps, hints and invitations to these adventures.

Summary – was it worthwhile?

What a question - yes! Prior to this stay I realized that people who have been involved in this program had a special mood when talking about it. I now understand why. The last days I read an email that new participants have been selected for this program. I am sure they want to know what they can expect. Let me put it this way: Boeing, the Reinhardt Abraham Studienförderung (RASf) and the Technische Universität Berlin will provide you with the best possible support. What you make out of it is up to you. It is hard to pre-estimate the potential of this program. If you want, it opens a door to a completely new world. Someone could say it is only a trainee program, I would disagree, it is an experience for life. As soon as you gain

distance from your typical German behaviour and get closer to the “American Heartbeat” you recognize the access to many persons around you and that is only the beginning. As for myself, I was really impressed as my co-workers lent to us nearly all the furniture for our apartment. I also will always remember the funny peculiarities like vacuum cleaner with headlights, washers with top mounted drums, and higher insurance rates for red cars (even if it is a Geo Metro).

Living and working in Seattle means that you not only learn something about the United States; this trip guides you to Taiwan, Spain, Japan, China and other countries as well. I was lucky to get in contact with people from different parts of the world and it was more than interesting to learn about their culture and sometimes to redraw the picture I had formed of this country. What I will miss most is the unconventionality, the easy going and multicultural arrangements. For sure I also will miss my flying and the Dunkin' Donuts I was addicted to. I don't want to glorify everything in the United States but for me it was very important and I am very happy to have been able to live a way of life outside the German one, at least for a while. I often found myself comparing our two cultures and trying to pick the best out of each one. Hopefully back in Germany I will be able to preserve this understanding. I feel very happy to be a participant of this program and I am proud of having worked on some of Boeing's projects. It is not only that Boeing has improved my engineering skills but also knowing that the University teaches us the right knowledge and gives us the proper “tools” to get the work done makes me very confident.



As I wrote this paper my intention was to tell about my experiences and to awaken other students curiosity for this outstanding program. Be sure this report will not be my last chance to do this...

We have also been told to suggest any improvements. So as I mentioned before I could not think of a better support by our sponsors but an idea would be to establish some kind of an orientation day or two where newcomers are guided around and introduced to the different facilities of this huge company. I bothered my manager quite a few times to see the different departments and to attend meetings which were not directly related to my job assignment. I always got his OK - thanks Ralph. As he told me something about “...a kid in a candy store ...” I knew that he understood me.

As my departure day gets closer and closer and since it took me a while to get things working the way I wanted them to, the harder it will be to leave everything behind. For sure I will also put quite a few items in our “survival package” but at least one thing I will take with me, – my memories. I will never forget the last six months. Some of my colleagues think I will not say good bye to Seattle for a long time. Somehow I have the same feeling.

So to all future RASf life experience members, expect six very challenging, salutary, traffic congested, adventures and life changing months in Seattle. A part of my life I never want to miss. A time I am very

thankful for. And always watch out for the "Sassquatch"...

*Thank you Reinhardt Abraham.
Thank you The Boeing Company.
Thank you RASf - Team and Deutsche Lufthansa AG.
Thank you Technische Universität Berlin.*

Trainee Programm (TP) III

Inside Boeing or it doesn't rain all that much in Seattle

By Torsten Busacker.

When I had been admitted into the Reinhard-Abraham-Studienförderung of the Deutsche Lufthansa Berlin-Stiftung to spend half a year in Seattle on internship with Boeing Commercial Airplanes, everyone had about the same advice to give me: "It'll be great if you like rain!". Most surprisingly, everyone in the entire world (Americans and Europeans alike) seems to associate "Seattle" with "rain". Looking back, I don't understand why. First, it didn't really rain all that much, not while I was here. Secondly, why don't people say "It'll be great if you like coffee?" or "It'll be great if you like grunge?" (I don't drink coffee, and I don't like grunge all too much, so maybe people were right to tell me about the rain).

Well, looking back, I can certainly say that it was great, although it didn't rain much. As I learnt when visiting the temperate rain forest on the Olympic Peninsula, Seattle doesn't get any more rainfall than Chicago does (35 inches of rainfall per year on average, whereas the temperate rain forest gets 171 inches of rain per year), so I will yet have to find out what the Seattleites all complain about (someone actually gave me a hint: Seattleites make up all that fuss about the rain, to keep

more and more people from flocking to their city).

Well, the arrival in Seattle was a great moment, and even though I still thought that it rains unusually much in Seattle, I was sure that I would like it just for that reason: the rainfall makes for a lovely, green and abundant landscape.



Six days after I had arrived, I started working in the Airline Industry Analysis Group of the Marketing department. I was very excited, since this was really one of my core interests. I got even more excited when I heard that the group I had just been admitted to is the one that is responsible for bringing out the Current Market Outlook every year. The Current Market Outlook (also known as the 'CMO') is Boeing's yearly assessment of the state and the growth perspectives of the global airline industry, and thus the world market for commercial transport airplanes and related services. The CMO is so famous among students because it is one of the most widely distributed air traffic forecasting publications, being available on Boeing's internet website. The CMO for 2000 had already been finished by the time I arrived and was actually published during the Farnborough Air Show, while work on next year's CMO had not yet begun, so that I did not actively take part in its creation. Yet, I got an idea of how its done.

My most important on-going task assigned to me was to develop a procedure that allowed to present incoming information

about the current state of the airline industry in a way that allows a quick pick-up of the underlying market trends, in spite of information that is available only in bits and pieces, which makes it hard to create a coherent picture of the state of the industry, above all for airlines located outside of the United States. Reasons for this are in part different accounting standards in different countries, that require airlines to include or exclude certain figures into certain categories on their balance sheet. Different countries also require different degrees of publicity for their airline's results. While in the U.S. all airlines that are publicly traded have to make their results public within a certain time-frame every quarter, foreign airlines might not be obliged to do so, at least not every quarter, or they don't have to publish all of their results.

To make things worse, certain airlines use their freedom to publish their results or not as a competitive tool, publishing only those results that are favorable for them, or putting together numbers in a way that tell only part of the story on purpose. However, it was very fascinating to see how they do it, and it was a challenge to set up a process and a scheme that allows retrieving meaningful information about how the industry as a whole is doing, and to present in a way that does not pretend an accurateness in the information that is just not there!

Another really fascinating issue that I have been dealing with was the level of foreign ownership that countries allow others to have in their country's air carriers. This is an important issue, since it sets the airline industry apart from most other industries, where limits on the foreign ownership of a company are now the exception. Not so in the aviation industry: for a variety of reasons, most states still do not allow foreign nationals (be it foreign airlines or other investors) to own more than a fixed percentage of it's own carriers. To complicate things further, some countries are more liberal towards

foreign ownership from some countries than from others (e.g. the EU).

Since these foreign ownership limits to some extent determine the course that the industry will take, since they allow or rule out cross-border consolidation in the airline industry, Boeing was interested in finding out more about them. A higher concentration among airlines in the future might mean a different future route network structure, and thus potentially different requirements for airplanes.

So, I was asked to find out more information about these limits, and to verify existing information. Most interestingly, the result of this research was that foreign ownership limits are different from what we thought they were: while still a decisive factor shaping the airline industry, these limits proved to be rather soft, with much evidence that national governments tend to adapt them to the current situation (e.g. the pursuit of a certain investor for their ailing flag carrier). Therefore, the result of this piece of research was that there isn't really any, which, in a way, is a result as well ...

What made this internship so special was that Boeing is not just a great company to work for, but that we're also lucky that Bill Boeing in 1916 also happened to be in arguably the most pleasant city and region of the United States when he started building airplanes (he was actually buying out someone who went bankrupt while building a boat Bill had ordered, and then started building airplanes with the tools and machinery.

I'm sure that explains why, to this day, aircraft fuselages from the inside don't look all that different from how you'd build a boat – "Stringer und Spanten!"). The city on the brink of mountains and ocean has certainly the best of both landscapes that you can wish for. Small islands, bigger islands, forested down to the water, with homes here and there between the trees, overlooking an inlet or a bay or a seaway, criss-crossed by ferries that connect them all ... all this strongly reminded me of Scandinavia on the spot, and, what should

I tell you, I wasn't the first one to think that way!

Actually, as I learned, this region was the most important destination for immigrants from the Scandinavian countries for quite a while, with one in four inhabitants born in Scandinavia in the 1890s. They have left their traces, in street names and people's names, in a Swedish hospital, the Nordstrom department store chain that is headquartered here ... and now I also know why out of only three destinations that SAS Scandinavian Airlines serves in the U.S., one is Seattle! Ethnic traffic, as the airline folks call it ...



Weekend outings took me to the Olympic Peninsula several times, to the two active volcanos, Mt. St. Helens and Mt. Rainier (outbreaks quite regularly every 400 years, so be quick to come while Mt. Rainier still looms quietly and imposingly on the horizon!), to Oregon with its beautiful Pacific Coast (no, October is not an excuse for not going for a swim), and to Canada twice, where I found Victoria and Vancouver, British Columbia being two equally attractive cities.



Another thing that I enjoyed much was to witness the electoral campaign that had been going on pretty much since I had arrived in early June, and I felt glad to be able to see up close the new president being elected. Well, while the elections took place five days before I am leaving, I guess I'll have to come back to see who actually has been elected. I'd love to!

Let me thank all of you who helped making this stay such a great experience, back home in Hamburg and in Berlin as well as here in Seattle.

I shall not forget it!

Thanks to the Donators

Since the middle of 1996 until December 2000 a number of renowned companies as well as private persons helped to raise the capital assets of the RASf by donating round about half a million USD. The capital has been invested and the annual earnings are used at full extent (no administration costs) for the internship programs.

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Publisher: Deutsche Lufthansa Berlin-Stiftung, Hamburg,
 eMail marianne.reichow@dlh.de,
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 Tel.+49 40 5070 4999,
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Text and Concept: Frank W. Jacob,
 eMail FrankWJacob@t-online.de,
 Tel.+49 40 657 00 24,
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