

## Fulbright German Summer Studies Seminar 1999

### Report

Expectations for this German Fulbright Summer Study on *Alternative Energy and Environmental Protection* had me very filled with anticipation, but I had no idea just how large and satisfying an experience this would be. One of the first pleasantries was the Condor Flight 6067, Boeing 767 direct from Anchorage to Frankfurt, which cut at least five hours out of travel time by not having to go any circuitous route but directly over the Pole to Frankfurt. This was afforded me both to and from Germany. One of the incidental glories of this departure flight was, in passing through Anchorage, I found an empty massage booth and was able to get myself a fifteen minute massage to totally relax me for what was to be an overnight flight. Even though the flight left at 6 pm and was direct, it still was going East, the worst possible arrangement from Alaska to a place ten hours out of phase in time zones. So we would arrive at the local time of 1:30 in the afternoon when it would only be 3 o'clock in the morning Fairbanks time. Having a restful rub was extremely helpful and gave the trip a boost I hadn't anticipated.

I sat next to an Austrian from Vienna who spoke a little English. He practiced my recovering German with me. The flight was uneventful. The first event I encountered in Germany was a very easy passage through customs, having my passport stamped at Frankfurt. There were mostly German nationals and Austrians on the flight, as it was designed for tourists. So there were very few Americans. I was perhaps the only one.

The first thing I notice is that the Germans have committed incredible financial resources to bettering the infrastructure of the country. One example is a new long distance train station right next to the Frankfurt airport. You can get to it very simply by walking, and that is the way the Fulbright Commission arranged for us to arrive: go to the airport, get on the train and take a one and a half hour trip direct to Bonn where a hotel was waiting for us. The train is an ICE, Inter City Europe, solid, silent and marvelous and the first green tempered scenery of Germany appeared on the hour and a half journey to Bonn. This trip is through the wonderful Rhine Valley, and the historic places like the Lorelei and the Castles from Sigfreid's Rhine journey.

I had only an hour after my arrival for the beginning of the meeting and dinner with the introduction by the German Fulbright Commission. This is where I first met Lisa Exey, an Iowan-American who was to be the main facilitator for the summer study and would accompany us all the way. She'd take role, head counts, keep us all organized, and be the main interpreter and facilitator when necessary. Dr. Barbara Ischinger, the Executive Director of the Fulbright-Kommission sat right next to me and another fine fellow, whose name I didn't get, but who had been in the foreign service and was a Fulbright

advocate in the government, treated me to some very interesting stories about being in Berlin in 1961. He took the bus tour around Berlin the day before the Wall was raised. He said the next day after it had been raised, he took the underground and noticed that it didn't stop at two stations: one being the Unter der Linden stop. The next stop was filled with paramilitaries and people crowded onto the platforms, sitting on their luggage and weeping because they had been trapped in East Berlin. Their lives had just changed radically.

One of my personal worries for this trip was that we would have one total miscreant who would be a huge thorn in the side of the individuals in the study tour. At this point, the first day of the trip, I was not able to discern the credibility of this but I hadn't found any such problem yet. The Fulbright-Kommission also gave us 1,500 Deutschmarks in cash which we had to sign for, and we had to give our passports and birthdates for a nuclear research reactor tour which would take place in Munich. We had signed up for a concert at the Gewandhaus in Leipzig. All these were very tantalizing prospects of what would be in store for us over the next three weeks. I also had the chance to sign up to do a report on the seminar's presentations which each of us had to do. I, because I was early on the list of sign-ups, signed up to report on the presentation by Dr. Hermann Scheer, author of "A Solar Manifesto", a book which had been required reading list for this German Fulbright Summer Study and which I had already had before it was mentioned. It's a marvelous, forceful, and aggressive piece of lucid logic and solar advocacy. That presentation is early on in the trip, only two or three days away.

During the first week particularly, I was very much screwed up for sleeping and woke about every two hours. On the first day I arose at 4:30 am, showered and laundered some clothes and wrote. The moon was out and it looked to be a clear and beautiful day, but later it was showery and threatened rain. The Summer Study is set up so that we can all share breakfast. One of the great glories of German hotel stays, is that every morning you get to have a buffet breakfast compliments of the hotel. This is an absolutely wonderfully civilized perk, and it also afforded us a great deal of opportunity each day to meet and have breakfast with new members of the group whom we hadn't had a chance to acquaint ourselves with yet.

The first week of the study was particularly strong in photovoltaics, and now it is clear to us why. Dr. Peter Varadi was called upon by the German Fulbright-Kommission to do the organization and make contacts to arrange this study tour. He is the founder of Solarex Corporation, the premiere American Photovoltaic Cell manufacturer. That explains why the first week of the course was so heavy in photovoltaics! Varadi brings to the course and the experience, an interesting personal history. He's a Hungarian refugee who escaped Hungary in 1956 during the crackdown on the revolution there. He

tells of driving a 1936 Skoda, a Czechoslovakian car, through East Germany into Berlin to escape from Budapest. He gave us a lecture on alternative forms of energy to get us started and he made the point to indicate that West Germany has been dedicating 100 billion Deutschmarks a year for ten years, the equivalent of two Marshall Plan total sums of money, every year for ten years, to adopt and restructure the former East Germany. This just points out that the context of this German Study Tour must be understood as a result of the end of the Cold War, and that has had a huge, huge effect on Germany.

I am only in the second day now, 8th June, and realizing after doing some calculations that this fabulous Fulbright experience with these interesting people, is worth about \$10,000 per person. My reaction to that is, who can live up to this? I wrote a letter to my daughter (since when I called home, she was the only one who answered) that risks and a life of effort, working for rewards of the spirit and heart got me this, and for that I am exceedingly grateful. After having experienced it now and reflecting on this experience as I write this, I realize that my life has been pointing in this direction for most of my professional life, but no one could have predicted that I would be doing this now and having such a magnificent experience, as a result of everything that's led up to it. I'm having insights also that I didn't anticipate I would have, but which are important to mention so that they get in the record.

One which occurred to me, is that the use of AmeriCorps and VISTA Volunteers in an Extension context, has a dimension which I hadn't clearly articulated in my mind before. It's very consistent and appropriate that in Extension we avail ourselves and seek the utilization, engagement, and service commitment of VISTA Volunteers and AmeriCorps Volunteers in our work. Since the entire program is oriented to national service and Extension is the service philosophical base of the University, clearly there should be obvious synergies, opportunities, and cooperative agreements which can utilize VISTAs. VISTAs can be the "graduate students" of Extension. An entire new generation of people with an expanded and modern university Extension effort, in a sort of an apprenticeship, is feasible with this thrust simply by allying with and using VISTAs in an apprenticeship fashion.

One of the things I recorded photographically and can include in the report, is a series of photographs I made of political posters that were available, mostly around Bonn. The first weekend that we were in Germany, was the vote for the European Community representation from Germany. And during the first week in Bonn, we had a very highly politicized session and at one point we had a meeting with members of the Bundestag, some free Democratic Party members, the SPD, the red part of the Red/Green Alliance (that's stands for Socialist Party of Deutschland, I believe), and members from the Alliance 90/the Greens, even though there are only 47 members of Alliance 90/the Greens in the Bundestag which has more than 500

places/seats. The SPD is the other part of the governing Alliance, and has the uncanny name of the "Red/Green Coalition". Every time you see it (in fact it's on of the poster photographs that I have) the Red/Green coalition, well no one else knows or has had experience with Red/Green and the Red/Green Show on public broadcasting. And so every time I hear the Red/Green Coalition, I smirk, but not one single other one of the 24 other members of the Fulbright Summer Study had heard of Red/Green in that context. So it was a joke that I only experienced.

Also regarding the Green Party/Alliance 90, it was unclear to me what the Alliance 90 part meant. It resulted from the Deutsche Democratic Republic, the East German former opposition. So the Alliance 90/the Greens, is a coalition of East/West and is German specific as a party. Some of the things that the PDS representative said, (PDS was the Peoples Party of Democratic Socialists, a residual party from East Germany, fairly rigid Socialists, but providing a very interesting alternatives, although probably not growing much bigger than it is now, 37 members out of over 500) for instance, "Germans tend to be obedient and disciplined primarily as their major characteristics". It also came up as to what the average tax rate was. The highest marginal tax rate is 53% and there is a 5% solidarity tax which goes toward the unification. But the average tax rate is about 9.5%, so it's not really all that savage compared to the US even though the US seems to think that the taxes are much higher in Europe than here.

On the next day, the afternoon of the 8th, I wrote a report on Dr. Hermann Scheer which I can insert here. It was my duty to do so, so I have formally reported on that. The next morning, the 9th was the last day in Bonn. We met a fellow named Dr. Harry Lehmann. He's a member of what is called the Factor 10 Club. This is a group of scientists, in fact he is the Chair of a group in the Wuppertal Institute for Umwelt, Naturschutz, and Energie (Environment, Nature protection, and Energy, it's an interdisciplinary institute which is trying to put forth a consensus view of environmentally sane aspirations). They are concentrating on what is essentially a program of embodied energy. They quoted figures like 30 barrels of oil per year supports every German, 80 tons per year of materials are moved or in some way manufactured and utilized by every German. They would like to reduce all of these resource throughputs which have enormous environmental impact by a factor of ten, thus the name factor 10 Club. It means we need to produce ten times as much resource welfare output with one tenth the energy and resource consumption. That's what the Factor 10 is based on.

Dr. Lehmann was an extremely stimulating and interesting guy. He brought up questions like, what are the major functional issues? Can the Factor 10 be accomplished and still convert the system to solar energy? He also showed how much of Europe is supported by environmental impact and agricultural land use outside of Europe to supply its food imports. Europe is

now responsible for 150,000 square kilometers of agricultural land use outside Europe to supply its food imports. He also talked about what we could use to give people and politicians a better measuring stick, a better conceptual tool of environmental impact. He said we could use entropy. But how do you tell a politician about entropy? He made a very funny statement in his presentation, pointing out that 80% of physicists don't understand entropy, so how in the world can you explain it to a politician?

Nobody came close to what I thought was the depth and cheerfulness and yet very competent lecture Dr. Lehmann gave. We heard from the Bundesminister for the Environment, Franz-Joseph Schafhausen. He spoke about renewables and public information but really was a fairly tired bureaucrat and didn't have much else to offer. We also heard from a former Fulbright Alumnus who's now a Bundestag member in the Alliance 90/the Greens, along with a fellow named Jürgen Maier, a UN member of the Commission on Sustainable Development, and a very, very bright and articulate member of the NGO factions in Germany. This was the start of what became an ever wider spectrum of contacts and efforts to bring all sides of the argument to the Fulbright discussion table. The Fulbright-Kommission did an extremely good job in getting us a broad brush approach with ample opportunity for every political and activist persuasion to be represented.

On the night of 9th June, I had a fabulous little adventure with three other guys in the Fulbright group. We decided to go to Cologne. The first glory was the group train ticket: 27 marks 50 for up to five people in a group! We were very easily awed by our first glimpse of the Kölner Dom, the Cologne cathedral. It looms up before you as you come out of the train station at Cologne. So, the first thing we did was climb its tower, 586 steps, totally impressive on all accounts. We walked around Cologne and lost my Florida Marlins baseball cap the first night out, and ended up at several beer halls, where we learned about Rice University's glories, and the illicit captured Nazi pornography Michael Heiman's (of Dickinson College) father kept all his life in the bottom of a drawer. Michael turns out to be an animated Jewish professor who is very open and enamored with Germany and beer. He has much to say about the interesting aspects of Israel and told us of how his father's gift of a condom saved him from a year in jail as he tried to smuggle five ounces of hashish into Copenhagen when he was a young man in the 60s. He also has two sons, 16 and 13 and the eldest is autistic and has radically affected Michael's life.

And finally there is Javad Tavakoli who is a chemical engineer at LaFayette College in Easton, Pennsylvania. He is an Iranian national by birth but escaped from Iran with his family in 1975. He and Michael had several revealing conversations about Iranian Jews and the politics of modern Iran and how it relates to Israel. Javad was also with me more than with the others and he was vastly impressed by the Kölner Dom, particularly the stairs.

Although we were honest and paid the train fare, in this case, we were never checked and we could have gotten away with not paying. The honesty is paramount in the honor system, a credit to modern Germany.

On 11th June 1999 we spent the entire morning with Andreas Wagner who is a major functionary with the German Wind Energy Association. He gave us a tremendous amount of data on wind power in Northern Europe; 9% of the entire electrical supply of Denmark is wind power, 1,400 megawatts installed. An interesting statistic, Wagner had just come from the European Wind Energy Association meeting and just to embarrass the French, he quoted the statistic that Hamburg city alone, has more installed wind capacity than the entire nation of France, 20 megawatts! Wind is also the second most important export in the Danish economy but the Germans are trying to get a bigger part of this. This was also the first time we heard a great deal about the European Union White Paper on Renewable Energy. This is something which I will make a note about in this report, and ask the American Wind Energy Association to make the EU White Paper on Renewables available to its membership. Apparently the EU paper is also available at the following website: [www.iset.uni-kassel.de:888](http://www.iset.uni-kassel.de:888)

On the afternoon of the 11th, after we had had the lecture from Wagner, we were taken to the offices of the famous German magazine, Stern, and we got an introductory welcome from the Editor and then we were given a very, very interesting presentation by Reiner Klingholz of Geowissen (Geoscience in English). This is a very upscale, beautiful magazine, a little bit more political than National Geographic, but the same sort of interest. One of the recent issues I asked Klingholz to send me and sure enough it was waiting for me when I returned. He gave us a lecture on the efforts of Geowissen to install hydro power and water systems to lower the infant death rate in communities in Nepal, a very interesting and beautiful presentation. And I made note that during that lecture: "wow this is a great lecture, and a great trip!"

Later that same afternoon after we had had lunch with the Stern staff and Klingholz, we were taken to a Greenpeace interview with two very talented, bright folks from Greenpeace Germany. Greenpeace's main office is in Hamburg (we're now in Hamburg, I don't know if I mentioned that). The Greenpeace interview was extremely insightful. First in the level of competence and technical ability they have, and second that they've developed a very good model for how to run a green utility. Greenpeace is not all that big a power in the United States, so I was shocked to learn that in Germany it has 530,000 members and is the leading environmental organization there (as a nongovernmental organization), with an annual budget of \$40 million, 80 million Deutschmarks. They can afford to do many, many things, consequently.

The next day, 12th June was a free day in Hamburg and I spent it touring mostly. One of the interesting things that I got to see, was recommended to me by Jay Rosellini, one of the Fulbright participants and a German culture specialist who also speaks fluent German, and has actually been a guest visiting professor at the University of Hamburg. He told me about a special exhibit, mostly church sponsored, about the history of Wehrmacht essentially an anti-militarist, controversial exhibit which was being shown just a short distance from our hotel. It was profound, explicit, full of weighty quotes of military letters from soldiers, and photos of atrocities in Minsk, in Serbia (a very timely and intentional choice), and in Byelorussia. The photos and the literary propaganda demonstration (mostly books which glorified war) constituted a very well done and compelling presentation. The exhibit was getting much attention and was full of silent, repentant, remorseful, brooding Germans, many of them very young. It got to be overwhelming and full of sighs and revulsions, so I finally had to go out into the sun and get restored.

I ended up, after walking through the Peterstrasse, the old Baroque houses, at the Hamburg Stadt Geschichtes Museum (the city history museum). It's one of the best of its kind. Some of its impressive elements are music instruments such as a hurdy-gurdy, a Hardangar violin, a piano forte, several old harpsichords, and a display of metal coins and medallions which included a presentation of German paper money denominations. This is where I finally saw the overwhelming evidence of the deadly inflation which took place during the Weimar Republic. There was a display which started with a 50 marks note, then to 100 marks, 500, 1,000, 10,000, 100,000 then furiously to a million, a hundred million, a milliard (which is our billion), a 500 milliard and then the most breathtaking money denomination I've ever seen, a billion deutschmark note, ten to the twelfth! This inflationary burden caused by war reparation and the response of printing more and more money, is something that most Germans never will forget and focused the attention on economic well-being between the wars, and was a major factor in bringing Hitler to power.

The museum also focused of course, on the maritime history because Hamburg was one of the major Hanseatic cities in the early Renaissance. There is a lot of maritime love and lore in the town. The Barbary pirates even figure in the history, as does the sacking of Hamburg by the Danes in the middle ages. There are huge models of the city at various times in its history and they are just amazing in their detail. It's easy to see why the Reeperbahn brothels were patronized and perhaps why the Beatles were able to succeed here. Hamburg is worldly, wealthy, hungry for good new concepts, and always ready for a night on the town. This seems to be the pulse of Hamburg. A nutty but magnificent exhibit in the Geschichtes museum is a huge wooden model of what is called Solomon's Temple. Now, it's a wood model I must emphasize here. The text says that this model was commissioned by some nobleman in the 16th century and is actually based on some errant, but

perhaps imaginative Spaniard's interpretation rendering of what he thought Solomon's Temple might look like. There are some very odd but magnificent objects like this in the world's museums. This is certainly one of them. It's about twenty by twenty feet and is mostly oak, birch, and inlays with metal solder for windows and details. It must have taken some craftsman years to do, but why?

I must wax to a sidebar here and talk about the group of men and women that the Fulbright Summer Study has put together. They're a marvel. Brilliant, well informed on Germany, almost to distraction and to a detail I've never encountered before. Discussions involved Kosovo, Russian influences, the Wehrmacht exhibit and its implications, it's unbelievably stimulating. I am developing an intimacy and compassion for Germany and the German experience like I'd never imagined. In our discussion with the two men from Greenpeace, a powerful moment came when Jay Rosellini, the German scholar from Purdue, asked simply: "Do you as Germans, powerful well funded Germans, find that you are dismissed or not given the credibility you deserve simply because you are Germans?" They answered quickly and desperately: "Every single day, we face this". It's just one more element of this experience which gave me compassion for the Germans. Another important aspect of this experience, was the clear indication that Germany's political balances are much more even than ours. Greenpeace has a voice which is heard and which represents a constituency which cannot be ignored, and must in fact be respected. I can't see that happening in any element of American politics right now.

After leaving Hamburg on the 14th, we toured Wismar, a beautiful Hanseatic city founded in 1260. It has the most magnificent brick cathedral, the largest one in Europe of brick. Then we went to this marvelous country house and the folks who run Lübow wind farm. They showed us the Enercon video on wind machine production and gave us some data and pro renewable energy materials, and let us drive and ride to the wind farm in solar cars, which are actually converted golf carts. They have used a method of trying to engage the community in adopting wind power and the wind machines in a way that I think is simply marvelous. They have painted the wind towers, and used school classes in order to engage the kids in the idea, painting a collage of ocean scenes on one of the bases of the wind towers, called "erhaltet die meere", which simply means preserve the oceans. A second (four total) is based on the Mecklenburg landschaft, the Mecklenburg landscape. A third, Schöpfung, just means conception or creation. And the last is the most interesting. It's filled with nuance and a play on words. It is entitled "Lebensbaum", the interpretation is simply Tree of Life. This is a play on words from Adolph Hilter's justification for German expansionism, that they needed "Lebensraum" - living space. The Lebensbaum, Tree of Life, is an African concept, a myth, a female symbol since life comes only through women, women are the only creatures on the sides of the windmill. The tree

of life is that source which ties us back to the earth with our ancestral roots. These marvelous artistic executions are a grand way to enable wind systems to reflect a wider, cultural, environmentally positive, social and political impact, than just leaving the technology to its sterile, white, pure and isolated self.

Although we are now thoroughly into the former East Germany, and there are clear traces of grey Eastern bloc weariness in the communist years, things look much improved nonetheless. There is a vast effort at rebuilding and reinvesting in the former East and our tour is sampling some of the best of those improvements. The group continues to eclectic and incredibly stimulating. We have debates about third world debt, wind power economics, marijuana legalization, nothing is off limits, nor are these folks uninformed about any of it.

On the 15th June we visited a biomass factory at Hagenow. This is a five megawatt power production facility, burning biofuels at 10,000 tons per year, 35,000 tons of waste wood, and the rest is paper and other types of waste. And one of the things they do, is supply energy and hot water to a potato processing plant, which is next door. In the afternoon we got a lecture by a Thomas Weber from the Ministerium in Schwerin in economics. He talked about all the problems of Mecklenburg-Vorpommern, the northern-most state of former East Germany, where in the past, there was a ship building and agriculture base. In the ten years since what's called the Wiederverwendigung, the rejoining of the East and the West of Germany, there's been a tenfold increase in automobile traffic. They've also newly rebuilt a telecommunications system with six billion marks investment, but they still have 20% unemployment. There was also a revolution in the universities in East Germany after unification. There are now six technology centers. There's a Center for Neurotechnology and 2,000 jobs were created but the state is much more active here and investing in tourist infrastructure. The social impacts are enormous.

The university revolution came because many professors, particularly in the Liberal Arts and Humanities, were purged. University Liberal Arts and Humanities professors were thought to have been ideologues. Yet the hard science faculty often were even more staunch ideologues because they wouldn't be allowed to travel to the West without being very hard line communists. Yet they, because they were thought to be less influenced by ideologies, weren't purged as much as the Liberal Arts faculties were. It was not a healthy thing to be a faculty member in universities in the former East Germany. Most of them have been fired and relieved of their jobs.

Again we're in the Schloss Schwerin in Mecklenburg-Vorpommern, somewhere around the 16th June and I'm commenting in my notes about the lunch and intermediate conversational experiences of this trip when the

formal presentations are not being held. These informal moments are intellectually charged, political, and some of the best features of the summer study. This experience is rapidly becoming one of the most intensely marvelous learning experiences of my life. It's such a grand idea and so full of good people of hope and energy and experience. Like many things, I knew it could be good, but I didn't know how good. And there really don't seem to be any null vectors or obnoxious twits, all so eclectic, so bright. The two German scholars, Peter Brown of SUNY New Paltz and Jay Rosellini of Purdue, are a superb addition to the community because they give us translations whenever we need them and we hardly ever miss the nuances and flavor of the discussions because of their rich knowledge of the language. Jay gave a briefing on the bus, only yesterday, to put the former East Germany into clearer perspective. While West Deutschland was reconstituted and restored by the Marshall Plan, East Germany had nothing like that and 20% of its industrial capacity was taken right off the top by Russia. East Germans therefore feel that they have borne a disproportionately huge part of the punishment and reparations for World War II. It is a perspective not given to most Americans, nor is much awareness of what happened since the Wall came down, conveyed to us.

This transfer of capital from West Germany to restore the infrastructure in the East, is almost unimaginable yet it happened. One hundred billion Deutschmarks per year has been invested in the East by the West for ten years. This is nearly twice the Marshall Plan in total, each year for ten years. More than a trillion marks and still there are in East Germany places with as much as 50% unemployment. The universities of the East, Rostock, Wismar, Greifswald, Stralsund, all have had radical "house cleanings" of their faculties after the Wall came down, particularly the Liberal Arts and Humanities faculty, as I've mentioned earlier. They were expected to have been rife with ideological distortions and partisan toadies. But Jay Rosellini says, the problems were probably worse for the science and engineering faculties because in order to travel, they had to have an unblemished record of partisan support, otherwise no Western travel. This could hopefully mean keeping the wife and children at home as hostages, conversely leading to incidences of husbands defecting simply to escape bad relationships or otherwise having only the most dogmatic hard-liners travel. All around a putsch of the faculties has occurred and it is unlikely to have been necessary in all cases, but was also unlikely to have been bad in all cases.

Jay Rosellini thinks engineering and science faculties were not as suspect because science is purportedly so much less subject to ideological distortions. Whereas the humanities and liberal arts were easily suspected of ideological sell-outs and poisoning of their departments by party pressures. He maintains that because of the supreme desire to travel to the West, the science and engineering faculties were even more pressured to be hard line ideologues

and so were no less deserving of a purge, but they much more often survived because of this misperception.

17th June was a particularly compelling day. This was the day we visited the largest archive of a communist dictatorship in the world, the former ministry for Staatssicherheitsdienstes, (State Secrets) the STASI of East Germany. We were presented this archive tour and insight by Johannes Legner, the Press Officer. It's hard to express the overwhelming sense of gloom and oppressiveness present in this visit. It was by far the most sobering and powerfully emotional visit yet which the Fulbright Commission has arranged. We were taken down into the basement to a room where they keep shredded documents. One of the things we saw, which I have photographed, is a series of masonry jars with a sign on them in German describing what is in the masonry jars. There is a scent trace of people maintained in the old canning jars. What they would do, is in order to be able to locate people who may have disappeared or may have tried to disappear, they would put them under duress and put a piece of paper or cloth under their underarms in order that they imbue the paper or cloth with their scent. This scent is then stored in a mason jar and is deemed useful for up to 20 years after its original capture. By giving the scent to a dog the same person can be tracked down. My only observation on this whole bizarre scenario, is that it is a demonstration of the inane extent to which humans will go to get control over other people and their lives. The scent could last for 20 years and could be used as a trace by dogs. We also were told that 95,000 people worked in the main STASI as direct employees and another 100,000 worked as unofficial collaborators. Thus, a huge apparatus developed: A secret police, a sort of secret army, with the same needs for loyalty and dedication as an army. They also maintained 180 kilometers of files.

The journalist, Legner, who guided us, is going to write a book which should definitely be worth while. He has developed a very powerful presentation and his facts are just riveting, overwhelming. There is a somewhat famous case which Jay Rosellini was aware of, that he asked Legner to describe. The case is of an East German peace activist woman, who married (eventually) a Danish citizen with whom she ultimately had two children. However, he, from the start, was paid to spy on her. When in 1992 the files were opened, this woman opened her STASI file in front of ten microphones with a public watching. She had no idea that the reportage would reveal that there was a huge betrayal of her by her husband and that this would be before her in the file as she read it. She was publicly humiliated and broke down, not knowing that this was going to happen. I don't know how this ultimately played, but I believe she is now a member of the Bundestag and is divorced from that man. But the overwhelming sense of betrayal of such a relationship and the effect it must have on all the family members is inconceivably huge. I want to know more about it I think.

Next we visited the Economics ministry in Berlin on 18th June and we found out that they were very supportive of PV, even though some communities pay 1.8 marks per kwh, about \$1 per kilowatt-hour. This is also the first time I heard Dr. Hermann Scheer referred to as “der pabst”, the “pope” of solar energy, a name which aptly fits him. There are several programs worthy of note: the 100,000 solar roofs (which we’ll hear more about in Munich) is a target now. There is a 2,000 Deutschmark loan available for installing PV and solar with a 7.9% interest rate, with one billion marks put on the table for that. The German budget for solar energy development and research however, is only 200 million Deutschmarks as opposed to 100 billion a year for East Germany. Passive solar homes have a loan buy-down but no other subsidies.

On the free day 19th June, I had breakfast with Phil Otterness, Sharon Jones, and Javad Tavakoli. We revisited the STASI experience and how much it had affected us. Phil Otterness pointed out that there is a book about the experience called “The File” by Timothy Garten Ashe. Garten Ashe is the same fellow who wrote a book that I have called “The Magic Lantern”, a description of all four of the major communist countries that came out of the communist bloc in 1989, East Germany, Poland, Czechoslovakia, and Hungary. Garten Ashe was a graduate student in the 80s and he actually had a STASI file which he read, and then sought interviews with people who were quoted as reporting on him in the file, asking them why they did it. Sounds like a fabulous read.

In another dimension of the Berlin experience, I visited what is now a museum called the Haus on Checkpoint Charlie, the former location of the checkpoint leaving the American sector. It’s now a museum, a very compelling museum showing all the stresses and attempts made to get around, over, through the Wall to escape from East Germany to West Germany during the time the Wall was up. In several instances and in one very impressive example, a Czech citizen, a male, built from scratch an ultralight flying machine and flew it 15 miles across a remote section of the Czech/German border into Bavaria, to meet with his wife and daughter who were already in the West. Spectacular escapes of this type were remarkable and as many as ten similar events happened, successfully, many involving Czechs.

This day, 19th June, the free day in Berlin, also engaged me by going to the Pergamon Museum and the Altes or ancient museum, two absolutely overwhelming, huge, and impressive museums, enough to wear out anyone. What’s fabulous about these museums, which helped make the Germans in the late 19th and early 20th centuries, make Berlin in fact such a classical center of study and interest, was the nature and scope of these museums. Regrettably, they seem to have also involved a great deal of theft and making off with great treasures of the ancient world. Things like the Pillars of the

Parthenon and the ancient treasures of Athens. The Pergamon is named for the Pergamon hill of Athens. Some of these great treasures I'm afraid were looted by the Germans in their efforts to save them for study and "protection" of Western Civilization. However, it's a marvel to know that all of these great museums were on the East Berlin side of Berlin and are now back. The Island of Museums, as it's called, in the middle of the small river that goes through Berlin, is a haven to all of these ancient museums, some of which are being restored like much of the rest of Berlin.

Just another little note, one of the profound moments, which will be evident with my slides, is the view from the top of the Reichstag where a new dome is being built. Some very interesting architectural aspects are being added to make a statement of the new Germany, looking toward a renewable, sustainable culture and future. Germans have done this in a most fabulous way. When you're standing on the deck overlooking Berlin from the Reichstag, you can see in a 360° panorama. Most of what you see in 1999 in the summer, is a huge number of construction cranes because there is so much construction going on in Berlin. I made a very off handed comment, saying "I'll bet one of our obsessive Fulbright Committee members has actually counted them" and sure enough Jim Throgmorton of the University of Iowa turned around and said "yep, I have done it, there are 59 visible from the top". Fifty nine cranes visible from the top of the Reichstag building, with a very impressive amount of that billions of Deutschmarks going into rehabilitating the new capitol, Berlin. The jury is out as to whether the resulting construction will result in the major millennial pace setting city of the next thousand years, or whether it will be a nightmare of post modern schlock architecture which will turn out to be an embarrassment to the Germans and most of Europe.

That evening, since the Fulbright Association of Germany is moving to Berlin to follow the capitol, Lisa Exey, our guide and facilitator from the Fulbright Kommission, took us to her new, devoid of furniture, apartment in the North-East section of Berlin. Following that very wonderful little gathering where we started a song fest and do whop chorus, we went to an Italian restaurant, called "the Due Pini" the two pines. Everyone was loose and full of wit and humor and singing and we made for one of the most fun nights I've ever had. Jay Rosellini, not only is conversant in German, but knows Italian love songs and we did everything from the Caribbean "Put the Lime in the Coconut" to singing dowap songs on the subway to doing Bill Tuller's rendition of a "Few Words from President Yeltsin" in the most stuporous, drunken Russian impersonation with hysterical overtones that I've ever seen. The talents of this group went way beyond scholarship.

From Berlin we proceeded to Leipzig, which for a while was home to Johann Sebastian Bach and Johann Wolfgang von Goethe, the great German literary and cultural hero, when he was a student. Goethe used a place called

“Auerbach’s Keller” which is in Leipzig and still exists, for several scenes in his Faust. He portrays the devil working his magic on students. Today it’s an upscale restaurant with a flashy bar over top of it. It’s in the basement of a downtown old section of the city. The new bar over it is called “Mephisto”. The city is wonderful and has been restored since the reunification. We also had the opportunity to go to hear the Leipzig Academic University Orchestra which honored the summer solstice this evening with an Ankommt symphony, in which the orchestra slowly materializes from off stage and the symphony slowly becomes complete. This was done in reverse after a session of summer from the Four Seasons by Vivaldi, Eine Kleine Nacht Music, and some music from the Marriage of Figaro. There was Ankommt and an Abschied’s symphony. The Ankommt was the first one and the Abschied was the second one, where Handel has written the symphony during which everybody disappears in a mirror image of the way they appeared on stage, leaving finally just two violinists to end the symphony. It was wonderful and very entertaining. This evening we had to recover from a heavy day of brown coal and acid destruction of the environment in viewing the huge scarring of strip mines and their attempt at ecological recovery of these areas. So we had a party in Claudia Clark’s room, who for some inexplicable reason had a three room suite at the Hotel Mercure in Leipzig. I bought a cheesecake, some chocolates and Freixenet champagne, and there was lots of alcohol and good words topped by an exchange of massages. The group is getting more and more friendly and more and more open and has a joie de vie which I treasure.

On 22nd June we visited the Stadtwerke at Leipzig which is the City Utility of Leipzig and this was a presentation made by a former Fulbright Scholar, an Alumnus named Winfried Damm. He gave an hour and a half presentation on what the utility in Leipzig is doing to try and make things better and to wean itself away from brown coal use into, unfortunately Russian natural gas. But it is still much cleaner and includes a very, very comprehensive utilization of cogeneration of heat for hot water and heating, by pumping the cooling water from the electric production around the town as hot water, a very helpful and useful way to deal with the energy conversion system. This guy was probably the most excellent program we had simply because he wasn’t flashy but he answered every question articulately and well, did not exaggerate, and considering the relative dryness of his topic, he did a wonderful job.

Leipzig it turns out is a very, very deep center of German culture and is trying to restore itself to its former life. It was primary in some of the revolutionary turnarounds that eventually led to the reunification and the opening of East Germany. We became more aware of this particular element of Leipzig history because on the bus from Leipzig to Munich, a five hour run, Lisa Exey brought and showed a two part film entitled: “The Nicholai Kirke”, which although based on a novel, is a valid portrayal of the fall of

STASI control in East Germany precipitated by church action and church refuge in Leipzig and a leadership of several church deacons and leaders. The story is compellingly woven around a brother and sister whose family is torn apart by the brother, who is a leader in the STASI, and the sister who won't join. Her daughter who leaves with a boyfriend via the Czech Republic in August of 1989 and eventually goes to Nuremberg. An alcoholic father of that daughter is married to the sister, increasing alienation from the system and rebellion as an architectural professional. It's a hugely engaging story and scenes of it took place all around central Leipzig where we had just been. One took place in the lunch room of our own hotel. It was a very good experience in strengthening our view of how bad things were before the Wiederverwendigung, the reunification, and just helped us learn German and give us an even more graphic dimension of what had happened in this place called Germany in the past decade.

Munich was fabulous and a great place to end the trip. We spent the first day at a very strange but different flavored nuclear facility where a test reactor was being built for neutron production for research at the Technical University of Munich. We had to have very high security for all this because Bavaria, the wealthiest part of Germany, is also the most nuclear with five nuclear power plants and consequently, with the Red/Green Coalition, in which the Greens want to see the end of nuclear power, it is becoming a very contested and controversial situation.

In the afternoon however, we were able to visit a university-run training ground for brewmeisters and a brewery run by the University of Munich called the Weihenstephaner. And of course we were treated to a case of Weihenstephaner as we heard another presentation on nuclear power as an alternative for development in Germany. Needless to say, there was a great negative reaction to this because most of our group is not really prone to believe that nuclear has a future in any kind of sustainable development. I certainly share that perception.

The second day in Munich, we did an excursion which took almost 15 hours to Oberösterreich where we visited a beautiful new house, and got a lecture from a group of teachers in a small community in upper Austria. The house was a new home construction giving an example of a young family trying to be committed and having foresight to develop their stake in Austria with a solar thermal, and wood pellet heated house. The wood pellets are part of a general utilization of wood waste and biomass in upper Austria. We saw another instance of a five megawatt power generating facility which used waste and wood waste from a furniture and paper manufacturing plant, and also used waste water to heat the local community, hot water and space heating. This young couple who had the house in Oberösterreich, gave us a lot of details on the costs.

A house of that type (and I have some photos of this to give a fuller perspective) costs about three and a half million Austrian shillings. There are about 13 Austrian shillings to the dollar, so we're talking about \$300,000 for this house which will probably last centuries. The cost of putting in the solar/thermal heating system and the furnace which utilizes wood pellets, was about \$18,000 of that cost. That's at least twice what we would pay for a heating system in the United States, but considering that it's a lifetime system and half is renewable and free of fuel, the Austrians seem to be very defensibly proud of that commitment. I would be too, but it is a lot of money. We could probably do the similar thing cheaper here and use a standard wood stove heating instead of the type of furnace they were using. They were using infloor heating by the way, similar to what we use in Alaska now.

That day, after a lunch at another brewer, the Zipfer brewery, and a visit to the cogeneration plant I mentioned earlier, we were given a tour of Salzburg, undoubtedly one of the most beautiful cities in Europe, and at the end of which we were treated to a final dinner with Barbara Ischinger, the Fulbright Commission Executive Director at a restaurant carved into the mountain side in Salzburg, just below the monk's monastery and the castle overlooking Salzburg. This particular restaurant is the oldest in central Europe and is mentioned in a travelogue by Charlemagne, who appears to have eaten there in 803AD on his way through, doing God knows what. It was just another spectacular opportunity to see something I would normally never be aware of, let alone experience. Everyone in the Fulbright group was just in awe at the depth and dimension of the experience of this trip.

Our final day in Munich was spent with a photovoltaic specialist from Siemens Solar. We were taken to the former old airport, now turned into a huge international conference center with a megawatt of photovoltaic/solar panels on the roof, made by of course, Siemens. We got an absolutely wonderful series of publications and information from Gernot J. Oswald, who is President and CEO of Siemens Solar, on the status and future developments in photovoltaics. This fellow was extremely conversant in English, very realistic, made some wonderful statements. He knew that Siemens involvement in solar was largely dependent upon the blessing of a CEO and that Siemens Solar was just one branch of the corporation. He also made some comments which I wanted to describe because he was so effective in what I think is an accurate and go-slow proposal, for photovoltaics. Siemens deserves a lot of attention and has done some incredibly proficient and perceptive advertising about photovoltaics regarding the 100,000 Solar Roofs Initiative. At one point, Oswald said that he is subject to a great deal of enthusiasm from young engineers who want to save the world with photovoltaics, and he used the phrase "our industry is plagued with enthusiasm". A phrase which rang true for me and which I found very, very helpful. To top it all off, Siemens provided lunch, a fabulous spread again of Bavarian food, to end that presentation.

In the afternoon we did a fairly intensive evaluation session for three hours with the group and then had a final dinner in Munich. Und es war zu ende: it was over. My notes say only that the Fulbright Summer Study ended this evening with a final evaluative session and another final fabulous dinner with apple strudel and cream to accent it.

A Summer Study is very much different from a year-long Fulbright, but it is definitely one of the best and most stimulating three weeks of education and insight of my professional life. So rich and varied were the experiences, the partisan show in the last few weeks in the Bundestag; the wind presentation in Hamburg; the architectural usefulness of the glass-encased Pilkington (the corporation which makes them) photovoltaic panels; the anguish and competence of the Greenpeace activists, who had been to Alaska and Anchorage; the quiet happy successes and artful community engagement of Frau and Herr Schmidt in Triwalk with their solar cars and their four Enercon windmills, beautiful kinetic sculptures which they are; the stunning brilliance and statement made by the solar lighting, photovoltaics and ventilation of the new Reichstag building in Berlin; the chilling, consuming power of the visit to the former STASI headquarters in East Berlin; the unexpected grandeur of the old heart of Leipzig and the tour to the strip-mined, brown coal lignite areas; the gorgeous drive from Leipzig to Munich punctuated with windmills and rain showers, and green graceful hills, dorfs and farms. And finally, Munich and the spectacular visit to Oberösterreich, and its solar and wood pellet family house; the breathtaking view of Salzburg and the celebratory meal in the oldest restaurant in Central Europe, followed by a bus ride home singing oldies and folk songs by Bob Dylan and Janice Joplin, and the friendly, final competence of Siemens Solar and the dinner tonight. I'm filled with deep gratitude, wondrous food, and a huge obligation to teach and lead, in a new well hewn respect, a love even, for Germany building itself anew. One of the benchmark experiences of my professional life.