



Steuben-Schurz-Gesellschaft – USA Interns



Exploring geothermal power generation and improving German at the KIT in Karlsruhe

Jonathan Cox

At Northeastern University Boston, where Jonathan Cox is a student of Mechanical Engineering, it is required that students complete between one and three six-month-long "co-ops" (internships) as a part of their degree. Here is what Jonathan reports about his internship at KIT in 2015 supported by USA Interns of the Steuben-Schurz-Gesellschaft

I had already completed a co-op in Andover, Mass. and had been looking for opportunities to complete my second in Germany fairly aggressively. After being in contact with *Juliane Adameit* (coordinator of the USA Interns-Program), I was placed in Karlsruhe at a research department of the Karlsruhe Institut für Technologie (KIT), which does nuclear and energy research. This was an excellent opportunity to both improve my German and explore the field of geothermal power generation, which has become the main focus of my studies.

My coworkers were largely Ph.D students and "HiWis" (Hilfswissenschaftler). Each day, we would meet at noon for lunch, which we ate together either in the Mensa or the Döner shop a bit up the road. There were three coffee breaks at the same time each day. I enjoyed this newfound structure which I hadn't experienced in the American company I had been working in before.

Germans also seem to take both work and leisure seriously, and someone coming from the states might notice how work and play are separated more strongly than they are stateside. I found people make more of an effort here to make conversation during lunch and other social events, something I have missed on my return to Boston.

Despite the initial culture shock, the social transition was far easier than expected. In addition to cultivating a good relationship with my coworkers, I quickly discovered a very international, student-oriented community in Karlsruhe. I met many people in my first weeks through *Stammtische*s, or simply talking to people in pubs. There is a thriving expat community as well, from the States as well as the UK, Australia and Ireland, so one need not feel alone as an anglophone foreigner.

My internship job description was fairly specific. I worked on some Matlab code that had been developed by the institute to simulate Organic Rankine Cycles for geothermal power generation. My goal was to create a means of running an economic optimisation of one of these plants, which turned out to be an enormously complex and interesting challenge, and it continues to be expanded upon by subsequent interns at the

institute. Much of the thermo I had learned in school returned, and I am now intimately familiar with many aspects of power plant economics as well as heat transfer considerations in the components of this plant.

Because my internship was rather long, I had time to write a summary report at the end to document my results (a common practice in Germany). This gave a sense of closure and a final "result" which is not the norm in an American internship unless one specifically clears work samples to be used in a portfolio (which you should do, by the way, regardless of where you complete an internship). Also, I was able to take two week-long classes in CFD, an advantage of working through the university.



After the six months, I had begun to form an attachment to Karlsruhe, as would anyone visiting somewhere for more than a few months. I have many friends there (see out-door foto) with whom I still keep in touch, and intend to return to visit and would consider pursuing a masters programme there.

I would recommend a sojourn abroad for anyone even remotely interested in it. You will improve your language skills, gain a new perspective on your own industry and develop empathy for your fellow man by being forced out of your comfort zone. I appreciate all of the help given by *Juliane Adameit* and the *Steuben-Schurz-Gesellschaft*, whose knowledge of and connections within German industry provide you an enormous advantage over those without it.

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