

*Harley Hollenbeck is one of ten local interns chosen for Pinhead Institute's 2006 Internship Program, which sends high school juniors and seniors to work with mentors in science institutions throughout the world. Harley spent six weeks this summer in Bochum, Germany at the Ruhr-Universitaet working with Dr. Mark Tuckerman, a professor of Math and Chemistry at New York University and a participant in the Telluride Science Research Center. His mentor Dr. Tuckerman wrote that he would gladly have Harley back on another internship. Harley is currently a senior at Ouray High School. This report was written in August 2006.*

A month and a half later, here I sit . . . by the computer that has taught me Linux, C++... on the desk where I have manipulated and solved hundreds of equations . . . at the university where I was so graciously educated . . . at in a country that I knew nothing about (well, continent for that matter). It's rather sweet, ah! As I look back, I remember my first weeks of mental exhaustion, as I fought to overcome scientific, linguistic, and environmental challenges of an internship at Ruhr Universitat in Bochum, Germany.

So, the question is, what have I been doing? Well, to the best of my ability, I have been working on finding an accurate solution to a fourth order algorithm. This means that I have had to apply physics (laws of conservation) and calculus (Taylor Series, Trotter Theorem) and then do a lot of algebraic manipulations. For the algebra portion, Mark and I used C++ to write a program, which checked my work.

All of my many questions and problems were addressed and solved by Mark Tuckerman (the Professor "legally" responsible for me) who was very hospitable and patient with me throughout the trip. Mark was very gracious in his teachings and never hesitated to leave one of his own many projects to help me with a problem. He is currently a professor at New York University (NYU) in the fields of Math and Chemistry. On my first day in Germany, Mark and I spent much of the afternoon site seeing . . . well, we walked all over Germany looking for my hostel (Papageienhaus). While we tirelessly explored the city, Mark and I learned of each other's interests and hobbies. It turns out, Mark grew up in Southern California and participated in many activities, like fencing. This was a fun subject because we could compare the few similarities and many differences in our high schools. Mark went to a high school that educated thousands while Ouray accommodates tens. This example represents the relationship I had with Mark because we both kept an open mind to each other's perspectives knowing that we both come from different backgrounds and experiences. In other words, he took it easy on me knowing that I had no prior experience with a programming language or Linux!

Outside the office, I was able to relax by watching the World Cup and by taking part in discussions with students who were/are from around the globe. The topics ranged from political point of views, religion and "what to put on a bratwurst"! I even got most of my hostel friends to play basketball with me despite their urge to play soccer. According to my friends here at home, I was to watch the movie "Hostel" before leaving the country,

so I would know what to expect from the Papageienhaus. To make a long story short, I didn't watch the movie, and I'm thankful for that decision.

All in all, I can say that I have learned more about this and that than I could have ever expected. I can honestly say that this last month and a half has been anything but routine . . . which can be good and bad. As a result, I look back and appreciate all of the hard work that everyone put in to help me get here. Thank you Nana Naisbitt and Kari Koch (Pinhead Institute) and Mom; everyone's hard work to help me get here was put to good use and I thank everyone. Vielen Dank alle!