

Catie Vincent  
AP Chemistry period 1  
6/6/06

Oral History Project  
Harvey Patashnick

The “junior group” - made up of Catie Vincent, Dave Morse, Dan Royal, Josh Levy, Paul Fang, Dan VanDeusan, and Becca Stern – interviewed Harvey Patashnick last Thursday, June 1<sup>st</sup> 2006. At first, I’ll admit, I was a little disappointed that our group had to switch from interviewing Ralph Alpher to interviewing Harvey Patashnick, as Alpher’s history went back a lot further and seemed to be full of more interesting events than Patashnick’s. For some reason, the Big Bang Theory also interested me more than research on air-born particles did. However, interviewing Patashnick made me realize just how useful the study of air-born particles is in many aspects of today’s world, and Patashnick’s emphasis on education and the importance of following passions helped show that it is possible to achieve your dreams if you work hard enough.

When Mr. Patashnick first informed our group that he had created a balance sensitive enough to find the mass of an object in nano-grams, I didn’t really understand how such an invention was really possible, or useful. Though the technical workings of such a balance still confuse me, I now understand how useful this balance, and Harvey’s many other patents (such as devices that measure the concentration of specific particles), are. Air-born particles affect everyone, everywhere, every second of every day. Patashnick’s inventions aren’t only used for astrological purposes– where they serve to help measure and study ice buildup on Skylab, etc. His patents were also used in the Salt Lake City Olympics and in other homeland security measures to protect against biological agents that could threaten the lives of all who are exposed to them. His inventions were used to help protect DaVinci’s “The Last Supper” by detecting any harmful elements in the air. His work in fine-particulate air pollution also has a positive impact on general health – as a correlation between such pollution and elevated risks of cardiopulmonary and lung cancer mortality have been shown to exist. I had never heard of Patashnick before this project, so it’s amazing to think that someone we don’t even know could be improving, or saving, our lives every day.

After learning about all of Patashnick’s accomplishments, it was amazing to see that he was pretty humble. It was easy to see that he loves what he does, and his

emphasis on the importance of being creative and following ideas or dreams that you're passionate about really stood out in my mind. Patashnick's inventions were all developed as a result of his questioning, persistence, and creativity, which proves that some of the best ideas don't come from the work or ideas of others, but from going against the grain and developing your own theories, no matter how crazy they may seem.

I was impressed by Mr. Patashnick's drive. From a modest background, Patashnick's parents – particularly his mother – greatly encouraged and pushed him to become educated and make a good future for himself. His parents had a profound influence in his life, and their influence and love truly was shown to have paid off – which is evident in Patashnick's values. His greatest accomplishment overall, he says, is his own family – his wife and his children. His fondest memory is the hard work he put into building his own telescope from scratch, as his family was too poor to buy him one. I think that this is very admirable, and even though the odds were stacked up against him, Patashnick was able to succeed and excel in the field he loved anyways. Patashnick's success also shows that it's not so much where you go to college, but what you do when you're there. He's not from an Ivy League school, he's a SUNY Albany graduate, yet his research has led to the development of many useful patents (as I mentioned before) and he is now CEO of a successful, and expanding, company.

Although Patashnick did provide our group with a lot of information, he still wasn't able to clear up the story of the Dudley Curse. I am still confused about the details of the curse, as everyone we ask seems to be very vague about it. While the history of the Dudley Curse will remain a mystery to me now and forever, I did think it was interesting to learn about what the Dudley Observatory used to be like. I was skeptical of the place after we visited, as it seemed to be kind of a joke located up in the senior home with nothing but archives and broken clocks. The Dudley Observatory that Patashnick knew, however, seemed like a busy place – bustling with researchers who pooled ideas and worked to develop new discoveries, theories, technologies, etc. This view of the Dudley Observatory is a lot different than the one I had, and Patashnick explained that the observatory is now more focused on education, etc. than on being a research institute. I thought it was interesting that the observatory could change roles so quickly, and I was amazed that the seemingly dull place actually was once exciting and

functioning – turning out important ideas and having a huge impact on the lives and careers of others (such as Patashnick).

Harvey Patashnick turned out to be a very interesting person to interview after all. His success as a businessman and a researcher was fun to learn about, and the message he gave us students – to pursue our ideas, to think outside the box, and to get the most out of our education – was very influential. Overall, this interview helped changed my perspective on several convictions that I had coming in. Air-born particles actually are interesting and very relevant in everyday life – especially in fields that I’m interested in, such as medicine. The Dudley Observatory wasn’t always an archive in a senior home, but it was a functioning observatory that helped foster important research. Harvey Patashnick’s history was interesting because he had to work hard to achieve the success he is known for today. Despite all these changes, however, I still hold my conviction that the Dudley Curse is confusing and that we don’t, and won’t ever, know the whole story behind it.

Becca Stern

06/05/06

I left the interview with Mr. Patashnick feeling inspired and excited. From this experience, I learned so much about the Dudley Observatory, advancements in science, and life in general. Mr. Patashnick taught us 6 interviewers from Bethlehem Central High School and Mrs. Schwab about the value of perseverance, technology, and passion.

Perhaps the most meaningful and inspirational aspect of the interview for me was hearing about how Mr. Patashnick overcame his childhood disadvantages to become a successful inventor and businessman. It was so amazing to learn about how he overcame the odds of not having enough money; Mr. Patashnick told us a story about how the \$30.00 it cost for a telescope he wanted was too expensive, so he decided to build his own. He really enlightened me by describing his feeling of empowerment when he was reading about how to build a telescope in his local library. Mr. Patashnick said that he was awestruck that even he, a young, not wealthy teenager had the capability of building an instrument that could see into space. Perhaps the most exciting aspect of this anecdote, however, was that Mr. Patashnick actually succeeded. He built a telescope from scratch! He carved the lens, assembled it, and created a functional telescope. This was not the only interesting invention Mr. Patashnick told us about.

I was fascinated to hear about the extremely sensitive scale he built that could measure the smallest particles in the air. The possibilities for application of his instruments are virtually limitless; just the concept that Mr. Patashnick has created an innovation that could possibly protect the world against biological warfare attacks (e.g. anthrax) is incredible. An important lesson that Mr. Patashnick emphasized in his

interview and that these inventions are symbolic of is the idea of not following the beaten path. Mr. Patashnick told us not to give up on an idea, even if it is unusual or seemingly impossible. He invented portable, rugged scales that can sense small, potentially harmful particles in the air. This unique idea may have seemed implausible to Mr. Patashnick when he first started his studies, but because of his determination he was able to succeed and build a flourishing company. His experiences in business also provided important lessons to our AP Chemistry group.

With an excellent sense of humor, Mr. Patashnick told us about the struggles he had to endure on his way up the ladder of success. It was striking to hear about the progression from his humble beginnings, to interaction with other scientists, life in college, and the development of Thermo Electron Corporation. I learned about the difficulties of being a CEO and the pressure that that position entails. I also learned about friendship and sportsmanship from Mr. Patashnick.

The role of Dudley Observatory in Mr. Patashnick's life was very significant. In Mr. Patashnick's senior year in highschool, he worked at Dudley Observatory doing various different jobs. Mr. Patashnick told us about how his experiences at Dudley inspired him to pursue his passion in science and research of micrometeorites. In addition, Mr. Patashnick mentioned the importance of the astronomy programs at Dudley. He stressed that the excellent instruction at Dudley led him to develop a passion and hobby in astronomy. It is partially due to the inspiration from Dudley that Mr. Patashnick has become such an influential and inspiring person who I won't ever forget.

AP Chemistry

6/6/06

Going into the Oral History project, I wasn't quite sure what to expect, simply because I hadn't even ever heard of an Oral History before. I was further confused when our class arrived at the Dudley Observatory, because I didn't know much about how it worked, and was expecting large telescopes and other astronomical equipment, since I was ignorant about its ever-shifting role toward astronomical education rather than astronomical research, and I was also quite intrigued by the mystifying Dudley Curse. My group was then switched from one scientist to another, first immersing ourselves in the life and career of Ralph Alpher, but due to inclement illness, finally settled on Harvey Patashnick.

At first, I do have to admit, that my group was saddened at first at the last-minute change, because we had grown to love Ralph Alpher, even though we had never even met him. Mr. Patashnick's extensive research on small particles and the measurement of the mass of the aforementioned particles just didn't seem quite as interesting as the mathematical calculations to the Big Bang Theory. However, thankfully we decided to give Harvey a chance, and we were fortunately given a man who not only did extensive research in his field, but a man who has been able to balance his business, intellectual, and family life with great grace.

One thing that took me by surprise during the interview of Mr. Patashnick was that even though he is a businessman, and a quite successful one, he never really had to give up his scientific inquiries. I've always thought that people have to make a decision and go one way or the other, but Patashnick is an example that disproves my previous belief. Yes, he managed a company and wasn't able to work as much on science as he wanted to, but he still continued to invent and patent many devices after achieving his manager status. This certainly has given me new hope in achieving great things in all facets of my life; I don't have to choose either business or science, I can have both. People don't often think of a businessman being a researcher, or vice versa, but Mr. Patashnick is living proof that such thoughts are ignorant.

Another thing that struck me during the interview was that he built himself up basically from nothing. He didn't come from a financially well off home, and therefore he wasn't able to have the best supplies with which to have his early education, and he had to work constantly during college so he could pay for his education. The thing that let him achieve was his constant

perseverance through hard times and the emphasis that his family had on education. His life story shows that all someone needs to succeed in life is the will to carry out their dreams, and the education needed to accomplish them. One story that exemplifies this from his life was his story about his first telescope. His family wasn't able to afford a telescope for him to use, but he wasn't dismayed; instead, he went to the library and learned how to make a telescope by himself, and ended up making a better telescope than the model that at first he wanted to purchase for himself. It shows that people don't really need money in order to succeed, because Mr. Patashnick was far worse off financially than most students' families are in the Bethlehem School District, yet he didn't let that stop him, and he has become incredibly successful in all areas of his life.

Another matter, which I found interesting during the interview, may seem superfluous to some people, but to me, it was very important. During the interview, he was always incredibly *human*. I doubt that I was alone in my assumptions about scientists. Many people just think of scientists as manifestations of their research; though some scientists surely do just become a part of their research and don't really have a life outside of it, most scientists are "normal" people, and have lives that flourish; they have lives outside the realm of science.

Before this project, though I was very interested in science myself, failed to truly grasp what it is to truly make science a part of one's life and career. I didn't realize that scientists don't really just become their research, and that scientists are just as human and any other group of people on the planet. I also learned that almost anything could be accomplished through perseverance and a firm educational background. The one thing, though, that I think was most relevant to me, was that Mr. Patashnick balanced all parts of his life so well. I have often feared to go into the field of science, because I don't want to sacrifice having a family, or having a career outside of science, but Mr. Patashnick is doing just that. He combines all facets of life, and shows that it indeed can be done.

Dan Royle  
AP Chem  
Response to interview

On Thursday June 1, 2006, my group, myself, Rebecca Stern, Dave Morse, Josh Levy, Paul Fang, Dan Van Deusen, Catie Vincent, and I, interviewed Harvey Patashnick at Bethlehem Central High School. Harvey Patashnick is best known for his development of scales to determine the mass of extremely small airborne particles. His work on these scales allowed him to open up a business, Rupprecht and Patashnick Co., which became world renowned for its micro particle scales. These scales have been used by coal miners, workers at Ground Zero of the World Trade Centers, and at the 2002 Salt Lake City, Utah, Olympic Games.

When I first heard that we were interviewing Harvey Patashnick and saw what he is known for, I wasn't very interested in interviewing him. But as I continued to read about him and what his invention has been able to do I became interested in learning more about his work. What I really liked about his work was that it has been used for worldly things and not just scientific measurements. When he told us about how his scales had been used to measure the amount of ice floating around the first International Space Station. He was called upon to measure the ice and try to remove it because it was destroying the very sensitive cameras on the station. Even though he himself did not go to the space station to measure the ice I saw how important his scales are to science. Dr. Patashnick's scales were originally stationary scales but after some research he created a scale that was portable and could be used in the field. This amazed me because he was able to create a scale to measure the size of extremely small particles and create another

version of the scale that is portable and is able to be used in field work, which I imagine was very hard and took lots of time to develop.

When I read that his scales had been used at the Salt Lake City Winter Olympic Games in 2002, I wondered why they were being used. During the interview he explained that his scales were used to measure the air to see if any airborne toxins, like anthrax, were present. This really intrigued me and caused me to want to ask him a few more questions about the topic. I wanted to ask him questions about the scales because I had attended the Salt Lake City Olympics and his scales were being used to protect me from biological agents. Also during my sophomore year I researched biological agents and their detection, which was another reason why I was interested in the scales use; one of the agents I researched was anthrax. Throughout my research I had never come across his scales or work, so the interview was very informative for me.

Harvey Patashnick is one of the most interesting and most well known scientists I have ever met. Yet even though he spends a lot of time on his work he also has a great life outside of science. By owning his own business he was able to give himself a chance to spend quality time with his family. It also allows him to restore and maintain his 1963(?) Corvette and play tennis in his free time. Also, by talking to him before and after the interview I was able to get to know him a little better and realized he was just a normal person, like the rest of us, yet he is a well known scientist in the field of particle physics.

Paul Fang

6/4/06

### Reflection on Dudley Observatory

I was unable to go on the field trip to the Dudley Observatory with the rest of the class, but I was able to get some information about it from our interview with Mr. Patashnik. Mr. Patashnik's stories about the Observatory allowed me to understand that the Observatory was crucial to his success. The observatory gave him a place to work and a place to learn more about astronomy, where he was able to design the mass measurer that gave him a start to his career of inventing. The observatory was very kind to him.

Mr. Patashnik's story of his beginnings was very inspiring. He was a very creative child; he worked with his hands to build his very own telescope by following directions in a book from the library because a new telescope was unaffordable to his family at the time. His telescope ended up being better and more powerful than any of the ones being sold at the store! As a college student, his first important project, the mass measurer, was unique enough that he was able to start a business around it. It was much more accurate and versatile than any existing balance. Over the years, he has refined it to higher degrees of accuracy and remains the sole distributor of the balance around the world; many environmental agencies depend upon it for air measurements. His company has developed many other useful instruments and products for use globally.

Over the years, Mr. Patashnik's role changed from being a designer to being a manager and executive for the company. He is no longer in daily contact with the bare

science but his favorite hobby, astronomy, allows him to remain close to his scientific roots. Mr. Patashnik shows that it is very possible to be successful while following one's direction of interest. He also exemplifies the importance of creativity and initiative.

Josh Levy  
Reflective Essay  
6/7/06

Although Harvey Patashnick seemed reticent at the beginning of our interview, by the end he was elaborating on his ideas and beliefs. I think the chief reason Mr. Patashnick was, at first, hesitant is that he didn't see anything particularly interesting to talk about. But it was his rather ordinary lifestyle (with extraordinary intellect) that made him a compelling figure to interview.

He grew up in the area and lived a regular childhood. When asked who were his role models and icons during his childhood, he responded that they were the typical heroes: baseball players and movie stars. But Mr. Patashnick also had a very atypical intellectual curiosity that led him to construct a telescope for himself from scratch. He went to the library and figured out how to build it. What is more, he was actually successful! Mr. Patashnick balanced his childhood with his scientific pursuits and did not compromise a relatively normal lifestyle.

Mr. Patashnick continued his interest in science, working at Dudley Observatory in the summer as a teenager. There, he received guidance from a particular mentor, whom he credits with much of his achievement. But Mr. Patashnick did not do much research work at Dudley. He says that much of his time at Dudley was spent washing floors and doing such other work. The guidance of the mentor was more important in guiding him in life than in science (which for Mr. Patashnick would become interrelated).

Mr. Patashnick's reaction to his experiences of his first few days at Dudley was particularly interesting. He said that at the start, he was taken aback by the extremely rude questions prominent scientists would ask him. He said they didn't really understand his position and his situation as a child. Perhaps, this shaped the outlook Patashnick had when he did science and became the CEO of his company. The pursuit of science is important but is secondary to the lives the scientists lead.

Mr. Patashnick also said that he was never one to follow the beaten path, as though it were mandatory. Rather than going into research science, the logical step from his experience, he decided to start a business that would produce and distribute his product, a balance that could weigh extremely tiny particles. Patashnick says that he might not have started his business if he had known how difficult it was to be a leader of a company. In fact, Mr. Patashnick admitted that one of his greatest flaws (at least in terms of business) is that he always second guesses himself.

This comment about his greatest flaws, showed his ability to laugh at himself. His sense of humor manifested itself many times. At first glance, he doesn't appear to be jovial and even might seem a little sinister. But as we talked, he would frequently crack jokes, sometimes laughing the hardest out of anyone.

When we asked Mr. Patashnick what his greatest accomplishment was, he responded that it was not his science or his company, but rather forming tight bonds with his family, which he says most people would be most proud of. He lives a pretty ordinary life with some extraordinary achievement and determination. When asked what it was like to have a commit named after him, he responded to the effect that it was pretty cool. He said his name, in the alphabetical listing of named commits, was right next to

Louis Pasteur. Mr. Patashnick found this just as astounding and exciting as we did. He is humbled to be on the same list as many of science's greats. Perhaps, this is because he considers himself a pretty ordinary guy.

I found his pursuit of scientific success while maintaining a rich personal life to be the most interesting aspect of what he said during the interview. He wasn't abnormal as a child (although he was something of a prodigy) and he seemed to keep a rational outlook throughout his life and career. Each anecdote he told or outlook he shared seemed to develop this image. The reason I found this so interesting is that I could see myself pursuing a similar lifestyle. While I may not be looking even at the same field of science or science at all, I feel as though I share a similar outlook on the way one should go about pursuing a career and a passion.

I learned a lot from this project. When we first went to the Dudley Observatory, I wasn't expecting much, considering it was in a home for the elderly. But as we met the people running the observatory, it became much more interesting. I love science, and I got to see people who do science as their jobs and have science as a major part of their lives. The Dudley Observatory showed me how far simple statistics (maybe not so simple) can bring you. Although it never became a huge observatory, it was very successful, having great scientists come and go, accomplishing much in its eventful past.

From the picture of Dr. Harvey Potashnik, I expected him to be a stern business man, not the joking, happy-go-lucky man that he was. He was never too shy to stick a few jokes in the middle of his answers to our interview questions. Dr. Potashnik hid many important messages in his answers to our questions.

When he was just in 7<sup>th</sup> grade, he asked his parents for a telescope. His parents refused to buy him one, and he didn't have the money for it himself. So he went to the library and rented a book on how to build a telescope, acquired the necessary parts, and built it. He said the main reason he probably had no trouble building it is because no one told him he couldn't. No one told him he had limitations. No one said, "O you're just a kid. You can't make a real telescope." He basically said that we can accomplish anything we put our mind to if we just ignore the imaginary limitations others place on us.

When he was still a young scientist, he developed a scale that could measure the mass of microscopic particles, an invention which he didn't know the magnitude of at the time. Today, this machine is used throughout the world to control pollution and test for weapons. This just

shows that although an idea may be out in left field at the time and may not seem significant, that the creativity of it can lead to an unimaginable result.

Astronomy wasn't the most prevalent path, even for scientists, at the time, nor did it offer good pay. However, Dr. Potashnik's love for astronomy drew him to it, despite the negative effects it may have on his life. He did what he truly wanted to do, not what the economy suggested he do. His basic message was to not follow the beaten path. Make your own, interesting path that defines you and who you want to be. He also wanted us to understand that we should follow our passion, and not to do a job for the money.

Dr. Potashnik participates in and supports the teaching of astronomy. He understands the great importance of it and thinks it should be taught in schools, at least in college, more prevalently. To me, this shows that sometimes you don't know the significance of something until you learn more about it.

At some time in his life, Dr. Potashnik made the transition from pure astronomer to astronomer/businessman. Now he is much more of a businessman, performing astronomy on his own free time as one of his beloved hobbies. When he first had the idea to start his own business, his parents wouldn't help him financially, nor did he want the help. He took a big risk in taking out large loans to start his own business, a business that has grown and thrived since that day. His main message in telling us this is that we need to take risks in our lives. Risk can lead to reward, and it's better to regret a risk taken than a risk deferred.