

Dr. George Klinzing

It was the mid 1980's when I was asked if I would be willing to help teach a course in Pneumatic Conveying for the AIChE. I was informed that my portion of the presentation was to be practical as another person would cover the theoretic portion. Although I was told the other person was Dr. George Klinzing, from the University of Pittsburgh, that meant nothing to me.

After only brief exchanges on the details of this course, we met the morning of the first session, and had our first chance to not only meet each other but to look at the materials the other was going to present. When I walked into the class room, I saw George preparing some materials, and I looked at him and wondered who is this smiling energetic person? It certainly could not be a university professor, and even more a dean. I must be in the wrong room!

But, no, it was George, and at that moment a friendship was born which has continued for over 20 years. It is impossible to not like George. His radiant smile and effervescent willingness to help, sets him aside from the normal characters we meet in life and with whom we have to associate. George is different, but I need not take your time to tell that to you.

Indecently, the plans we had individually made for that first course dove tailed together like we had been working together for years. We alternated teaching times, intermingled with coffee and lunch breaks, and I know that at the end of the first day we were amazed how well our subjects worked together.



I have been trying to think of times we spent together, that I know George would like to forget. But, if you know me at all, you know that those are the things I can't keep quiet about.

On one occasion George and I were to give an in-plant school in Oklahoma. We arranged our flights to arrive at about the same time at a convenient airport. Since my flight arrived first, I would rent a car and we would go together to the course location. It was one of those nights that you only see in horror movies. It was dark, a heavy rain was falling, wind was blowing, and occasional flashes of lightning lit the sky, and our pathway. Since time on the road was taking away our sleep time, I drove, perhaps, a little faster than one would recommend. All I can remember of that night was the

strong cross winds (I believe a tornado type storm) and when the lightening would flash all I could see was George holding on as tightly as possible and his white knuckles were almost glowing.

On many occasions my wife would travel with me on business trips, and so frequently the two of us would spend time with George. I have some beautiful pictures of George, the Olympic swimming star, at Miami Beach, but my wife wouldn't allow me to show them. George, you owe Myrt a thank you.

Occasionally, I would find a company that was going to surplus some equipment. At that time George was actively running tests in the lower floors of the Engineering building at the University of Pittsburgh. On one occasion I found a pressure tank that could be used to feed fluidizable material into a pressure conveying system. Without much detail, George accepted the offer. I wasn't there to see it, but I hear it went something like this.

The flatbed truck arrived at the engineering building with this 42" diameter, about 10' long pressure coded vessel, which had an integral support. Now, the truck is in the busy street, and now they would figure out what to do. I don't know if this is true, but it makes a good story, George went to one of the engineering classes and brought out all the students. They lined up on both sides of the truck and lifted the vessel off, and carried it into the engineering build, much as one would handle a coffin.

But that was just the start. They wanted the vessel in the basement, but when they tried to put it on the elevator, it was longer than what the elevator could handle. Well, you get the picture.

On a subsequent visit to University of Pittsburgh, we looked at the installation. The tank was in a room off the hall, along with the compressor and receiver. But the conveying line went out into the hallway and proceeded around the building back to the original room, and to a dust collector. Now what would you expect George would be conveying in this set up? Why not? There is plenty of coal in Pittsburgh, and so pulverized coal would be an ideal, inexpensive product to test. I was sure we would read that the engineering build was raised a few stories, as the coal conveying system exploded.

During those "good old days" George and the graduate school were always looking into pneumatic conveying theory. One of the students was none other than, Shrikant. In order to keep my reputation as a heckler, I had to give George a rough time. So, whenever I would see the research work they were doing, such as how long does it take for a gnat to wink his eye, I would tell George it was interesting, but not practical. It wouldn't solve any of the worlds conveying problems.

George was very receptive to my criticism, (at least that is what he led me to think) and for some years, as a new research project would be started, I would meet with the graduate students, discuss the work they were doing, and suggest taking a little bit of additional data which would then make their test work useful to the practical world of conveying. This resulted in several contributions to the pneumatic conveying world that have had a strong influence in the practical application of conveying.

For example, Shrikant, while working on his project and with my prodding, took extra time to computerize several subjects. There were three computer programs that were based on artificial intelligence, that would guide a novice through selection of a material handling system. A second

program guided in the best way to feed the material into a conveying system, and the third program was very useful in troubleshooting a conveying system that was operating as desired.

To let George rest for a moment, let's turn our attention to Shrikant. He spent several days with me asking questions for these programs. He would ask "Do you ever do something in pneumatic conveying?" And I might answer "No." Then he would come back "Could you?" I would say "Maybe" Then it would be "What percentage of the time would you do it?" etc. Shrikant got even with me for all the troubles I ever gave George.

Incidentally, the three programs were the property of University of Pittsburgh, and through George's involvement, they were made available for sale to the conveying industry, and many dollars were raised for the university through the sale of these programs. Thank you George and Shrikant.

Every since my first meeting with George, I recognized that he was a man dedicated to helping and working with others. Two times that I can recall, I dropped in on George with a technical question on which I needed his help. The first was a simple question. "George, in our equations to get Mass we divide by G (gravity) What would I do if I were on the moon?" At that time the space administration was considering having people live on the moon, and one of the requirements was to generate Oxygen. This required the pneumatic conveying of, what we shall call moon dust, for lack of a better term. George dropped everything. This was exciting. He had never been asked a question so "out of this world" before, and he was excited. After a bit of research, checking various references, George gave me the guidance needed. And, incidentally, he was right. But who would have guessed otherwise? How do I know he was right? Well conveying tests done under reduced and zero G conditions, proved the theory correct. Thanks George.

On a similar challenge, we had to calculate pneumatic conveying with a gas other than air or nitrogen. I called George for a quick answer, and that is what I got, but I was also surprised in that it was accompanied with a 7 page email with all the details I needed (and maybe a few more).

In these 20+ years of association with George, I have encouraged anyone that approached me with a technical question to "Contact George". To the best of my knowledge, in spite of how busy George may have been with routine work, there wasn't anything he liked more than to dig into the theory of Pneumatic conveying. I have heard back from many of the people who have contacted George, that he was very helpful and friendly. In his present position with the University, one might think that delving into mundane details of science would be too time consuming or beneath their level, but George has always been ready to help anyone.

George, there are a few things you haven't accomplished in this life. You still have that research facility that was with Gulf Oil Company. I'm still waiting for you to turn that into a profitable independent research facility dedicated to the field of pneumatic conveying.

I am sure I can say for all your friends and colleagues here today, that you have been a great friend, an inspiration, and a great credit to your vocation and the University of Pittsburgh. Thanks for being my friend.