



## Invited Letter

## A Professional and a Gentleman: the Enrico Drioli I know

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Every technical person is some way unique. It is also hard to profile a technical personality in its entirety only on the history of association of a couple of decades. But I had seen Enrico Drioli in ways perhaps few in professional circles would. Although my association with him was primarily professional, I had the opportunity to see him in situations that are both formal and informal. This is an issue of the journal to pay tribute him for his accomplishments of Enrico Drioli. Others will undoubtedly detail those. I was asked to provide a personal perspective with anecdotes. I had an opportunity to introduce him to problems of the environment that would be amenable to membrane process solutions. Here in this space I pay my respect in my own way.

Prof. Enrico Drioli had already established himself as a distinct personality in the world of industrial membrane research before I came to know him in the late eighties of the last century. In those days, he and his research group used to have collaborative contacts with engineering scientists in my group, who were also engaged in research on membrane separations, in the National Institute of Standards and Technology (NIST) at the Boulder, Colorado location. I personally started collaborating with him in several ways after I moved to the National Risk Management Research Laboratory of the Environmental Protection Agency, located in Cincinnati, Ohio. One of the research areas I established there was separations for environmental applications, including membrane pervaporation. There were serious researchers in my group, although I dabbled in membranes a little myself as well. I will relate stories around that association with Enrico Drioli in this space.

In October 1998, I organized a NATO Advanced Research Workshop in Prague on Tools and Methods for Pollution Prevention. Enrico was an invited featured speaker at this workshop. His message was optimistic. He showed how many of the adverse environmental impacts could be remedied using various membrane processes. He criticized the pessimism often expressed by various groups who thought pollution was conquering us and only policy solutions, such as banning or restricting, could reverse the environmental damage. A few minutes into his speech, in his inimitable style he expressed his displeasure by loudly pronouncing the words: damage, damage, damage! The entire audience burst out in laughter. "Damage, damage, damage" moniker stayed with him as long as he was in the workshop. I believe this was his first foray into environmental discussions, and his audacity expressed in the workshop was refreshing indeed.

After the meeting, I visited Enrico in his laboratory at the University of Calabria. He was gracious enough to send someone to pick me up at the

Lamezia Terme airport. This was a long ride through hilly roads. The driver, Damiano, quite advanced in age, drove his car like a maniac at what seemed like 80 miles an hour through the serpentine hilly road. I was scared and asked him to slow down but he did not speak a word of English. What he seemed to say was: calm down, there is no danger here! Later when I mentioned it to Enrico, he thought my reaction to Damiano's driving was funny. He assured me that Damiano was a flawless driver; every life is safe in his hands.

This workshop has launched a long collaboration with Enrico and his veritable membrane research group. I had also established a NATO project that supported a multinational technical group to gather once a year for ten years, mostly in a city in Europe, to exchange ideas on clean products and processes. At its peak, it had representations from 27 nations, mostly NATO member nations, but also Japan, Mediterranean partner countries such as Egypt, and several nations of Eastern Europe even before they joined the EU. Enrico joined the group early. His attendance pattern in these yearly meetings we thought was funny. Typically, he would come for one day and leave the next day to attend to his otherwise very busy travel schedule. He became known as the "in and out" member of the group. He was of course gracious enough to send an alternate, usually Alessandra Criscuoli, when he could not possibly attend. Only one time he stayed for the entire duration. That was when he hosted the 2003 meeting in Cetraro in a seaside hotel with an attractive cellar. He even managed to have the owner of the hotel to host a banquet with selective drinks from her cellar. One of the pictures shown here shows the entire group at Cetraro on the seaside right after lunch one day (see [Figure 1](#)). Enrico is an exquisite host by any standard. Assisted by his able administrative staff and students, he paid attention to every minute detail of the meeting and visits to industrial sites that accompanied the meeting. A second photo shows him displaying the signed attendance poster of the workshop. The third photo shows him as guiding the group through his research laboratory. In this picture his immediate neighbors are delegates from South Africa, Ukraine and Denmark (see [Figure 1](#)).

Enrico was interested in some research we were conducting on membrane development at the EPA laboratory. He sent his student researcher Alberto Figoli to visit our laboratory for a duration twice. This collaboration led to some joint publications on fragrance isolation from fruits by the technique of pervaporation. Alberto was also involved in the development of a new membrane with us on which a U.S. patent was issued.



Fig. 1. Enrico Drioli in membrane meeting in 2003.

Prof. Enrico Drioli is a handsome man who must have inherited great genes. He always looked at least 20 years younger than his age. Additionally, Enrico is endowed with seemingly unlimited energy. Once in a North American Membrane Society (NAMS) meeting in Cleveland, where he and I were scheduled to chair a session early in the morning, Enrico was visibly sick the night before with a severe cold. I was preparing to go it alone when he assured me that he would show up, and I was not worry. In a side street in Beijing, China, he bought the famous Tiger Balm. A little application of that on the outside of his nose would fix the problem, he said. Much to my delight, he showed up at his usual energy level. He also told me that he rarely drank bottled water. He challenges his system with tap water in whichever country he visits. Hard to believe, but his personal biology is a remarkably self-correcting system, immune to many assaults from nature!

Enrico during the time of my associations with him maintained a very busy schedule. Over a decade, I have seen him at the NATO meetings in the “in and out” mode. This is because he came from one far off country and going to a different far off country either for conference or forging official collaborations. In one of these “in and out” meeting he confessed that he was about to go to a South East Asian country. While he would be engaged in collaborative membrane research, he said he had been asked by the Government of Italy to negotiate some other scientific collaborations. To an American ear this sounded like conducting a diplomat’s work, which is exclusive to government bureaucrats. It is certainly interesting to note that Enrico was a valued negotiator for his university, as well as for his country.

Enrico is also observant of events around the world. In his office, there is

a photograph of violent street demonstration of sort. He explained to me that that was a photograph he took of the Prague Spring in 1968 when he was visiting. On one of my travels to visit him, he called me at the hotel in the morning to inform me that an Indian was awarded the Nobel Prize in Economics. I had read an article in the Wall Street Journal a few days before that this could be the year for Amartya Sen. He confirmed it. Enrico is cosmopolitan, interested and observant of practices of countries that he visits. He told me a funny story, funnier still the way he delivered the story. He was leading a delegation of scientists from his institute to China. There they through a banquet for the guests. At the start of the event a large Chinese guy entered the banquet room with a long live snake around his neck with his fists around the neck of the snake and its tail. When the signal was given by the host, the guy cut off the head and the end of the tail of the snake and started to squeeze with both hands. Blood started to come out which was collected by another person in cups. When this spectacle was completed, the awestruck delegates were given a small quantity of the blood to drink as a way to inaugurate the banquet. However, disgusting the event might have been, out of politeness, everyone of Enrico’s entourage drank the blood. They were told this was a delicacy and is a sign of a great dinner party. Enrico told me this story when some of us were having lunch at a restaurant in his university. There was a young researcher next to me and she was present at the Beijing meeting. Enrico teased her by mentioning that she was the only one in the delegation who liked the taste so much that she asked for a second helping of the delicious snake blood! I thought the idea of drinking snake blood was revolting. But this paled compared to another story I heard at a dinner party at

one of my NATO meetings. This was related by a Russian membranologist who was part of a Russian delegation to China. There is a restaurant they were served monkeys' brains as an appetizer. This reminded me of a scene from the Spielberg movie Temple of Doom where the same item was served at a large dinner party which the protagonist Indiana Jones attended. The story of the Russian gentleman was more macabre because the monkeys were alive when the incisions were made on their brain to create a circular opening. Ripley's Believe it or Not?

Enrico Drioli is a perfect gentleman, and a great host. He always maintains an immaculate professional appearance and behavior in all his dealings. As a membranologist, he is known worldwide, but he has many more attractive attributes beyond professional stature. One would always love to share a lunch or dinner with him and hear stories of his experience. As he is a vintner as well, I only wish I could taste a drink from his cellar.



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