

Report on Polystan Award

By

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On Saturday, March 27, 1976, I embarked on my European journey, the result of being honored by AmSECT with the 1975 Polystan Educational and Travel Award. On writing the article "Hemostasis" my goal was to condense the voluminous and complicated material on blood coagulation for the understanding of and application to perfusionists. The rewards for its selection for this award, in the form of a two week all expense paid tour through various medical centers of Europe, were immense.

Arrival at Copenhagen, Denmark, on Sunday, March 28, marked the beginning of my European experience. I was met at the airport by the friendly and familiar Colin Green, who is general sales manager of Polystan and is an Englishman-turned-Dane. The afternoon was spent on a sightseeing excursion through Copenhagen, then northward to Kronberg ("Hamlet's") Castle at Elsinore. To my surprise, I was told that Hamlet never actually resided at Kronberg Castle but was just placed there literarily by Shakespeare. From the road to Kronberg Castle it was possible to see across the channel to Sweden. Since all U.S.S.R. Atlantic bound ships or submarines must pass through this channel, a highly sophisticated electronic sensory system monitors all navigational traffic in this area. The contrast of geographical closeness to both Shakespearean country and Communist territory caused an eery reflectiveness. This mood quickly gave way to one of relaxation when we dined at the Marienlyst Inn, splendidly furnished with rugged, rich woods.

Monday, March 29, included a delightful visit and lunch at the Polystan Office in Copenhagen. I was introduced to Erik Kyvsgaard, the President of Polystan; to Peter Harbor, electronics engineer from England; and to open-faced Danish sandwiches, made by placing exotic meats and fish upon various types of Danish bread. Mr. Kyvsgaard, an exuberant man, had recently undergone surgery which restored what had been a major hearing loss. His description of newly discovered sounds, such as the zoom of automobiles on motorways or the scratch of a pen across paper, could convince one that all these taken-for-granted routine noises were actually symphonic music.

I visited the Riggshospitalet (meaning Community Hospital) at the University of Copenhagen on Tuesday, March 30, to observe an open-heart case (VSD patch repair) performed by Dr. Paul Lauridsen and Dr. Inge Rygg. It was, of course, Dr. Inge Rygg who, in cooperation with Mr. Erik Kyvsgaard, designed the Rygg-Kyvsgaard (Polystan) oxygenator. Dr. Paul Lauridsen had recently returned from a period of study with Dr. John Kirklin, in Birmingham, Alabama.

The perfusion team consisted of three people: Annette Kaarsen, Anne-Lise Kolbu, and Lene Falk. Lene was on a study tour out of the country. Since all these young ladies are both expert perfusionists and cardiovascular nurses, the duties of cardiopulmonary bypass, scrubbing, and circulating are rotated.

I found all the facilities at this institution to be extremely modern. A curious difference from American hospitals was that all staff uniforms are provided by the hospital, including O.R. shoes, which are grounded clogs.

The surgical and perfusion techniques are examples of excellence. The only roller pump used was for the arterial pump. The suction system consisted of three separate vacuum chambers. The length of suction line and the amount of vacuum applied to each suction had been carefully calculated to provide adequate and practical suction with minimal trauma to the blood.

All of the monitoring equipment was custom designed or modified by the hospital's Biomedical Engineering Department and was the most outstanding I have ever seen. Most innovative in my opinion was the automatic gas control device. This was a mini-computer which received pO_2 input from the oxygen-sensitive connector in the extracorporeal arterial line. Its output was connected to the gas flowmeters. Through the logic circuits, gas flows were automatically adjusted to maintain the desired gases without requiring any manipulation by the perfusionist. The results were more consistent gases throughout the case and achievement of extremely low gas-to-blood flow ratios.

Most of the remaining time in Copenhagen was spent shopping or enjoying the hospitality of the Danes. The Danish people are indeed remarkable. Most speak fluent English if they need to. They are diverse and cosmopolitan like Americans. They appreciate good food, wine, and beer. Their pace of life is, like that of most Europeans, more natural and less hectic than Americans. They take the utmost care to insure the comfort and enjoyment of visitors. Yet, they are always proud and industrious in their work.

Before leaving Denmark, I made an over-night trip to the city of Aarhus, which is located on Jutland, that part of Denmark which juts up from continental Europe. My hosts there were Dr. and Mrs. Eric Berg. The superb dinner in their home was beyond description. Dr. Berg is a thoracic surgeon and is a physician-perfusionist at the University Hospital in Aarhus. His hobby is making electronic musical organs from scratch. His first organ required ten years to complete. I was shown his workshop and was absolutely amazed to find that he used no preassembled circuits, but made his own, placing the resistors and all. Even without extensive electronic knowledge, the intricacy of such a task was easily appreciated by me. This organ, he said should only require five years for completion.

The next day, Thursday, April 1, I observed an open-heart case at the hospital in Aarhus. The perfusion set-up was quite similar to the one in Copenhagen except that there was no automatic gas regulation. In both Aarhus and Copenhagen, silicon tubing was used because it is less expensive in Europe than PVC tubing. I was captivated by the slave monitor mounted on the pump, which was a black and white closed circuit TV screen showing the operating field. The perfusionist, without having to stand on a stool or move surgeons, interns, etc., aside, has a perfect view of what the surgeon is doing. In addition, superimposed on the face of the TV monitor are all of the physiological parameters being monitored: EEG, EKG, pressures, etc. The perfusionist has, at his fingertips, the most sophisticated monitoring device I have ever heard of.

On Friday, April 2, I journeyed to Tegernsee in southern West Germany for a weekend of relaxation. Tegernsee is bordered on one side by a beautiful lake and on the other by magnificent mountains. Its architecture is typical quaint German and its atmosphere is perfect for a break from municipal life and sight-seeing.

On Monday, April 5, I went by train from Tegernsee, Germany, to Zurich, Switzerland. I would recommend to anyone considering saving time and flying from Munich to Zurich that he go by rail instead. The scenery along the way was like all travel brochures or National Geographic. There were mountains, meadows, villages, forests, and free running streams.

I shared the first class compartment on the train with a man who was a French Professor at a German high school. Characteristically, he was going about his "holiday" in a methodical but relaxed fashion. He had a map and an altimeter, and while I was snapping pictures of the scenery from the train window, he was tracing the route and noting the changes in altitude as we made our way toward Zurich.

My host in Zurich was Mr. Armin Bollinger. He escorted me to dinner where I gorged on yet more delectable European cuisine. The next day, Tuesday, April 6, I visited the University Hospital in Zurich. By unfortunate coincidence, the renowned Professor Senning was in the United States at the time of my visit. However, I did observe an open-heart case performed by Dr. Meier. The perfusionist was Mr. Ernst Zips. By conversations, I found that the major problem in this center was space, yet the space available was put to efficient use. Some 1,000 chest cases, including over 500 open-hearts had been performed in two operating rooms the year before. Nonetheless, all were looking forward to expansion and modernization of the building.

I spent the afternoon walking around Zurich down Bahnhofstrasse, the famous shopping street, to the Zurichsee, an inland lake. The next day I departed for London, the final city on my European itinerary.

Erik Kyvsgaard and his wife, Katy, were also in London on a short business trip. They escorted me to lunch at Wheeler's, a restaurant with an incomparable seafood menu. This was one of those dining places which could be known and found only by one familiar with London, but I certainly intend to return should I ever find myself in London again.

I also attended a musical play, "Billy," starring Michael Crawford in the old and beautiful Drury Lane Theater, from where I thoroughly enjoyed the performance.

During my last full day in London, I sampled all the sights and shopping by foot which time permitted. My hotel was near Marble Arch, Oxford Street, and Hyde Park. Hyde Park is similar to New York's Central Park except that it is much safer.

Flying back to the States on April 10, I reflected upon all my recent experiences. I had touched several different cultures, met some memorable people, seen all sorts of sites and landscapes. My fears of traveling alone as a woman had proved to be groundless, for everywhere I went was generally safer than in the United States. The hospitality, the foods, the relaxed atmosphere, and the fellowship will be remembered for years to come, as will the experience of observing total cardiopulmonary bypass in European open-heart facilities.