

## COMMENTARY

## A ONE-YEAR SABBATICAL IN JÜLICH

**D**uring a recent sabbatical year in West Germany, from July 1985 to June 1986, I had the great pleasure of working with Prof. Dr. med. Ludwig



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Feinendegen, director of the Medical Institute at the Nuclear Research Center (*Kernforschungsanlage*) outside of Jülich, a small town west of Cologne. The research involved positron emission tomography (PET) studies of glucose transport and metabolism. One can't help being impressed with the thoroughness of the German scientists, and the willingness of

German patients to participate in research studies. Volunteer patients were willing to travel to a research facility an hour away to give their time as subjects. Research is held in high respect.

Scientific research is well supported by the German government, and seems to be a major industry in Germany. There are two principle nuclear research centers, one in Jülich and the other in Karlsruhe, not far from Heidelberg. I found that Germans love traditions, and in the sciences they have every reason to be proud of their reputation for originality and precision. The tradition of the "Professor" as authority is stronger there than in North America. And "Professor" as a title evokes more respect even than "Doctor"—I was referred to either as *Herr Professor* or *Professor Doktor Patton*.

An example of the kind of support research finds in Germany is the Alexander von Humboldt Foundation, which supported my own sabbatical through a US Senior Scientist Award. Up to 80 such awards are made available each year, with medicine accounting for 12%. Nuclear medicine has been recognized before: this award was given to a nuclear medicine physician (Henry N. Wellman, MD) in 1979, and to a nuclear medicine scientist (Harrison H. Barrett, PhD) in 1980.

Many European nuclear medicine physicians and scientists expressed their feelings to me that European scientific accomplishments are largely ignored in American nuclear medicine circles, even when the results are published in English. What is perceived as American provincialism or even insularity is puzzling and irritating to European scientists, who want to share their work with us but have

difficulty finding a suitable platform or appropriate recognition. After sitting on the other side of the table for a year, I feel there is something to what they say.

Nuclear medicine in Germany is not nearly as well defined or cohesive as it is in the United States. Many nuclear medicine physicians limit their practice to certain aspects of nuclear medicine, such as thyroid, renal, or cardiac procedures. The association with radiology is not as strong as in the United States but is becoming stronger. There is currently no organization in Germany representing the *practice* of nuclear medicine (as the various colleges do in the United States), but several organizations represent the scientific and educational aspects of the field, most notably the Society of Nuclear Medicine—Europe (SNME) and the European Nuclear Medicine Society (ENMS), which have negotiated to merge. Germany also has its *Gesellschaft für Nuklearmedizin*, as well as a number of very active regional groups.

The German system of medical care is socialistic. Medical care is provided by the government through a system of private physicians filling specific posts; one does not simply hang out the shingle. There are few vacant posts in nuclear medicine. Germans by and large are far less mobile than Americans, and far less likely to move to a different community during their careers. Entrance to medical school is highly competitive, but classes are large nonetheless. To give all applicants a greater chance, some students are admitted to medical school by lottery. German medical schools graduate far more physicians than there are posts for in the community, and as a result many medical school graduates find positions with industry or even with non-medical concerns.

The practice of nuclear medicine in Germany is quite different from that in the United States in many ways. Laws in Germany regarding the handling of radioactive materials are generally much stricter. For example, in Germany patients must be kept under radiation safety precautions if their body burden exceeds 2 mCi of iodine-131 (or other therapeutic radionuclide), compared to 30 mCi in the United States. This means that virtually every patient receiving iodine-131 therapy will do so as an inpatient. Clearly the cost of this extra precaution must be quite large.

I had the opportunity to see the stringent guidelines in action when I visited the new Division of Nuclear Medicine at the University of Düsseldorf Hospital (Düsseldorf is on the Rhine north of Cologne). This 1000-bed hospital is quite

modern by US standards, and will soon have its own PET unit. The clinical and laboratory portion of the division forms an inner area with controlled access, requiring special clothing and badges. Nobody can just walk in. All people leaving the inner area are monitored before they can leave. The air pressure in the inner area must be kept at negative pressure with respect to outside air, so each room has its own air pressure gauge as well as a radiation monitor. All gauges and monitors are connected to a central alarm board. The walls and doors of each inner-area room are lined with 2 cm of lead.

There are 11 beds dedicated exclusively to radionuclide therapy. Waist-high lead-filled barriers separate patients from staff and visitors, but can be swung out of the way for examinations and patient care. Each room has its own toilet and shower. To avoid possible contamination, there is a central kitchen facility for radionuclide therapy patients.

The entire nuclear medicine facility is a closed system: all water (sinks, showers, toilets, labs) is led to a system of 10 huge steel storage tanks in the basement. Each tank is about 2 meters in diameter and 4 meters high, holding about 10,000 liters (nearly 3,000 gallons), with pumps, stirrers, and radiation monitors. Liquid waste can be pumped from one tank to the next, or from the last tank to the outside sewer system, though not without passing through a

final monitor with veto power. There is virtually no radioactive waste leaving the hospital; even waste with half-life measured in weeks can be held for decay before release. The central board in the main nuclear medicine facility indicates the status of the tank holding system also. The control board for this system brings to mind a small nuclear power plant.

What motivates such a remarkable level of radiation safety awareness? It seems to be related to the high population density in Western Europe. The European community is made up of countries of very diverse backgrounds and cultures, but the countries are comparable in size to some of our States: West Germany is just a hair smaller than Oregon, and its neighbor Holland is just larger than Maryland. The Rhine flows through Germany to Holland and the sea. Countries must live with their neighbors, and any radioactivity detected in the Rhine will be traced to its source. Regulations may be stringent, but the Germans succeed in meeting them.

I would like to take this opportunity to thank my German hosts, and the Alexander von Humboldt Foundation, for making possible a most enjoyable and productive year.

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## SNM WINTER MEETING TO COVER PERFUSION IMAGING

**T**he Society of Nuclear Medicine's (SNM) Winter Meeting will draw scientists and physicians to San Antonio, TX, next February 2-4 to discuss the latest developments in Perfusion Imaging: Instrumentation, Modeling, and Radiopharmaceuticals. The meeting will include oral presentations of scientific, technical, and clinical papers, as well as minisymposia on selected topics.

Michael M. Graham, PhD, MD, program chairman, said that "although many of the abstracts submitted will concentrate on blood flow in

the brain and heart, we are encouraging submissions in other areas of study."

### Three Minisymposia

On Monday, February 2, the Computer Council will sponsor a minisymposium on positron emission tomography (PET) perfusion imaging with oxygen-15. The next day, a minisymposium on heart and brain perfusion agents will be presented by the Radiopharmaceutical Science Council. Instrumentation systems for blood flow imaging will be the topic

of the third minisymposium, sponsored by the Instrumentation Council.

### Abstract Deadline

The submission deadline for abstracts is November 26, 1986, and abstract forms were published in September and October in *The Journal of Nuclear Medicine*. [For more information, contact: Education and Meetings Dept., The Society of Nuclear Medicine, 136 Madison Ave., New York, NY 10016-6784 (212)889-0717 ■