

With this present issue of the JOURNAL OF PRESSURE VESSEL TECHNOLOGY, the Technical Editorship officially passes from Dr. R. E. Nickell to me. I am sure that all of the steady readers of the Journal are aware of the exemplary job Bob has done in not only maintaining its reputation for excellence, but also guiding its progress towards a more comprehensive journal. At this conclusion of his second tour of duty as Technical Editor, I extend to Bob my best wishes for the future.

Given in the forthcoming are some of the remarks made by Dr. Irwin Berman, Fellow ASME, upon receiving the ASME's Pressure Vessel and Piping Award at the 1982 PVP Conference and Exhibit in Orlando on June 29, 1982. Dr. Berman is Technical Director of the Engineering Science and Technology Department at Foster Wheeler Development Corporation, as well as Vice-President of ASME (he heads the Council on Engineering). The award was presented to him in recognition of his many distinguished contributions to the field PVP technology, not the least among which was his service as Senior Technical Editor of the JOURNAL OF PRESSURE VESSEL TECHNOLOGY.

The remarks are a somewhat abridged version of those presented at the Orlando Conference. They are printed here not only because they contain an historical perspective of the PVP Division, but mainly to serve as a challenge to all of us to participate more actively in all aspects of our profession.

G. E. Widera

Remarks by Dr. Irwin Berman Upon Receipt of the ASME Pressure Vessels and Piping Award, June 29, 1982

I would like to thank all of you for this award. Any professional success that I have had is based on the help of many people through the years. In looking back I see that there were important teachers in my life, starting with my kindergarden teacher. She not only gave us love, but instilled in us an excitement and wonder about all things. My high school physics teacher respected me enough so that he would not permit me to answer in class in a sloppy manner. There were so many helpful university professors. My thesis professor, Phil Hodge, demanded not only excellence, but also clarity, brevity, honesty, and hard work. However, he asked no more of his students than he gave of himself.

These thoughts come to mind partly because of my participation in a recent industry/founder society forum on engineering manpower. It is clear that there is a crisis in engineering education. It is not attractive for sufficient number of our bright, motivated young people to go to engineering graduate school and to subsequently teach in our universities. The salaries are low, the equipment is out-dated and the demands on their time are great. For this and other reasons, such as the poor utilization of engineering talents in industry and the salary compression of experienced engineers, very few bright students from the USA are going into engineering doctoral programs.

As engineers we tend to emphasize engineering education, and we should. However, we must remember that the health of our engineering depends not only on the final product offered at our engineering schools, but on the entire educational system of our country.

Of the many people who helped me in my professional life, I will only cite two. The supervisor in my first professional job at Curtiss Wright Corporation was Hillary Barrett. In writing so that he could understand my reports, I clarified my own ideas and found errors in my work. I learned that jargon can easily hide bad work. In my next professional job, I was fortunate to work with one of the acknowledged great engineers of our time, who is also one of the most wonderful human beings. John Blizard in 1956 was 74 years old and director of research at Foster Wheeler Corporation. He is the oldest living honorary member of ASME who will be 100 years old on August 2, 1982. His sense of humor and joy in life are infectious to those around him.

I was actually asked to speak specifically about the Pressure Vessels and Piping (PVP) Division, its past and its future, its importance and success. There is a paragraph in Bruce Sinclair's "A Centennial History of the American Society of Mechanical Engineers" that points very clearly to the driving force behind the development of the division.¹ Sinclair points out that ASME from the beginning was concerned with standardization. Standardization provided an effective means of processing technical information and of integrating it into industrial practice. He goes on to say, "The development of a standard could be an intellectually satisfying form of problem solving that required elaborate research programs to create new knowledge. Standards were aimed at systematic understanding and the rationalization of practice. Standards most of all involved economic considerations."

For many years the meetings of many existing divisions of ASME were forums for the presentation and discussion of results and ideas that were applicable to the areas of standardization related to pressure vessels and piping. Papers were reviewed by peers. This peer review is extremely important because as much as we try to be objective, our work is subjective. Thus a user who is not a technical specialist the equal of the original investigator could be lead to ruinous decisions.

After the Second World War the science approach to engineering overtook our engineering curricula in the universities. It also got a foothold at ASME. Rather than the tradition of Timoshenko with its physical insight, its simplicity, its base in engineering practice, and its use of critical experimentation, we got caught up in scientific formalism with often times little basis in reality. Some key divisions which previously dealt with the development of the technical information to be integrated into practice, moved away from these practical concerns.

There were also many new requirements in the area of pressure vessels and piping that did not have a home in ASME. Thus the PVP Division was formed about 16 years ago. The original operating committees gives you an indication of the broad concerns: Design and Analysis; Materials; Fabrication, Inspection, and Testing; and Operations, Applications, and Components. Shortly thereafter the Computer Technology Committee was formed from a subcommittee of Design and Analysis. The full spectrum of engineering related to structural concerns was covered fairly well.

The Pressure Vessels and Piping Division has grown greatly and is now one of the larger divisions in ASME.

However, we must be aware of the immense new realities

¹ Sinclair, B, "A Centennial History of the American Society of Mechanical Engineers 1880-1980, published for the ASME by University of Toronto Press, 1980, p. 47.

that are going on in the broader society. The possibilities in the next 20 years overwhelm the mind. We are in an information age. Computer-based information systems will profoundly impact our lives. There is talk of implanting computers into the brain so as to create a whole new species of humans with the world's knowledge instantly available. The world of robotics and automation is here. We do not know where it will lead.

There are many possibilities based on recombinant DNA. Already there is artificially made interferon and insulin to control disease. There are micro-organisms to eat toxic material and restore polluted lands. There is talk about eliminating disease in plants and subsequently in humans. They are talking about stimulating genes to control and eventually eliminate aging. One gets the feeling that the energy problem may become a thing of the past with some new technology. Cities in space with regular space travel seems just around the corner. Truly this is an age of non-fiction because the imagination cannot keep up with the fantastic daily realities.

There is also a dark side to the future. These new technologies have possibilities for massive or total destruction. With new technology the world may be devastated by means of a disease virus or an attack from space. For 37 years

we have been living with the nuclear bomb threat. This is for the full lives of over half our population. The psychological effects on our society, in which children no longer come to grips with their mortality in terms of old age, has helped steer many people away from dealing with reality.

As citizens we must work to permit the desired features of the exciting new realities to come to pass without the disasters. We must remember that facts do not cease to exist because they are ignored and that the best mind-altering drug is truth. As engineers involved in pressure vessels and piping, we must remember that our objective is the systematic understanding and rationalization of practice.

In order to progress we must develop institutions and priorities that produce engineers with dreams of sufficient intensity to lead them into new avenues of search and discovery. Furthermore, as recommended in the report of the Industry/Founders Societies Forum on Engineering Manpower,² "Engineers should be regarded as a precious national resource and their career paths established to continuously make the most of their *technical knowledge, experience, and creativity.*"

²Report of the Industry/Founder Societies Forum on Engineering Manpower, San Antonio, Texas, January 17-19, 1982, ASME, New York.