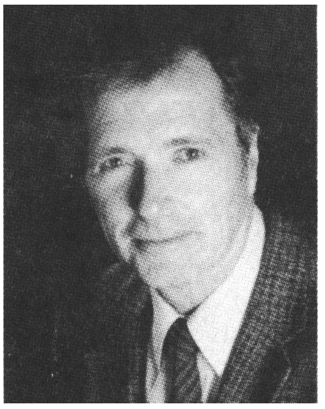
COMMENTS



In preparing the Table of Contents for this issue, I was especially impressed with its rich diversity of topics. The areas covered range from plasma engineering to first-wall/blanket technology to tritium and shielding. This vividly illustrates what we in the field all realize—that fusion research and development brings together an unusually wide array of advanced technologies. This has important implications for the fusion community.

From the point of view of constructing future experimental devices and, ultimately, power plants, we must nurture a variety of high-tech industries that can supply the demanding skills, materials, and equipment required. A model for this could well be the quality-conscious industrial complex that Admiral Rickover laboriously assembled to support the development of naval submarine nuclear reactors.

From an academic perspective, this diversity means that the field must attract bright students from a broad range of disciplines. This can best be done by ensuring that key faculty from various departments (nuclear, mechanical, electrical, materials, physics, etc.) have the opportunity to collaborate on exciting research in fusion-related topics—research that will attract outstanding students, ensuring a flow of new "blood" and fresh ideas into the field. Unfortunately, as large projects develop, there is a tendency to reduce support for such research grants, and this in turn stifles the influx of new ideas and innovation. Indeed, that happened in the nuclear fission reactor development area, and many feel this played a role in the delay in development of advanced reactors (e.g., the "passive safe" designs now envisioned) as a second generation of nuclear power plants. We must guard against this tendency in fusion development.

In addition to individual specialties, fusion reactor design requires experienced leaders having a broad cross-disciplinary understanding who can integrate the various subsystems and technologies into an optimized unit. Such ability is often gained from extensive practice in the field, so that an individual's particular background is not as important as the breadth of his work experience. On the other hand, course work on the design of power plants is typically included in a nuclear engineering curriculum, and this experience provides an ideal background for fusion design integration. In any case, the development of fusion power plants will require the coordination of input from experts in a wide range of technical fields. While the next generation of experimental devices, e.g., the International Thermonuclear Experimental Reactor (ITER), will not produce commercial power, their size and complexity

approach that of future power plants. Thus, we are already facing the challenge of integrating these diverse technologies into a cost-effective system that still performs its function (experiments now, power production later) with minimum downtime for repairs and maintenance. This task becomes increasingly difficult as experiments move into long-term deuterium-tritium burns, where tritium contamination and induced radioactivity in the structure complicate access to many parts of the machines.

The breadth of our field also provides a challenge to the editorial staff of *Fusion Technology* (*FT*), who must identify and maintain contact with technical referees from diverse backgrounds to review papers covering the range of topics encountered in the journal. Serving as a technical referee can be a time-consuming task, but one that is interesting and challenging, and is obviously of vital importance to the journal and to the fusion community. If you do not currently serve as a referee, we can certainly use your help. Please write to us at the *FT* editorial office (100 NEL, 103 South Goodwin Avenue, Urbana, Illinois 61801-2984 USA; *g-miley@uiuc.edu*) or to one of the associate editors, and let us know of your interest.

Added Note: It has come to our attention that Al Maschke, one of the early pioneers in heavy-ion beam fusion, recently passed away. He was a friend of *FT*, having coauthored several papers. He also served as a reviewer. The following note is taken from the April 1995 *IFE NEWS*:

Alfred W. Maschke

With sadness we report the death last month (March 1995) of Al Maschke, who played a major role in developing the early proposals for use of heavy ion beams as igniters for inertial fusion power plants. Al continued for many years to suggest lines of thought and action, some of them strikingly original, toward reaching this goal. His unique combination of professional abilities and distinctive personal qualities will long be remembered by all who knew and worked with him.

We also learned recently that one of the pioneers in fusion neutronics research, Professor Charles Maynard, passed away in February. He was a frequent contributor to early issues of *FT* and a conscientious reviewer. A memorial to Professor Maynard appears on the following pages.