

1989 – A “Building Frame”

BOWLERS speak of the ninth frame as a last chance to build toward a powerful finish in the tenth. This ninth decade is winding down but there remains one year to build toward a powerful decade of the 1990's in aircraft technology development. At the same time we can build this Journal into the premier international journal of aircraft technology.

Looking first at building some technology, I see several areas where we might turn some of our effort. One area is the validation of computational fluid dynamics (CFD). Great progress is being made in the development of CFD methods. Application of these methods to ever more complex geometries and flight conditions is also well noted and reported in these pages. An equally rapidly growing concern, however, is with the validation of these methods and indeed with the validity of the applied results. This concern has received considerable attention within AIAA, and efforts are underway to provide guidelines for journal articles regarding numerical accuracy and experimental uncertainty. But the matter is not just one of editorial policy. Rather it is a fundamental issue of developing a validation strategy to be followed or at least used for reference in aircraft technology development.

Our CFD methods require good turbulence models that are still unavailable due to lack of viable turbulence data. Ground-based experimental facilities are, in general, not well configured to provide such data. A major effort is required in facility upgrade, instrumentation development (especially nonintrusive), etc. Codes must be written with “built-in” features to introduce turbulence data into the modeling method.

The validation process also requires some comparison and upgrade based on other results such as other codes, ground tests, and ultimately flight tests. Again, codes must be written with specific built-in provisions for revision based on these comparisons.

I do not believe that the CFD development community alone can accomplish these validation objectives. It will take the combined efforts of CFD specialists, experimentalists, ground and flight test planners. Your ideas on how to accelerate this process are welcome this year. Specific cases should be identified for initial concentration. This Journal will publish good landmark papers that establish a CFD validation process.

There is some indication in the recent news that airline profits may continue to be up this year based on “record 1988 third-quarter earnings.” The prediction assumes level economy trends, continuation of current high fares, and stable fuel prices. Perhaps the airline industry should divert some of its profits (assuming higher profit margins) to fuel savings technology development. For example, the great promise of substantial drag reduction through laminar flow control (LFC)

has still not been realized operationally. Good papers on this subject, including technical concept development, design issues, integration, and operational issues, are always welcome. We could build toward a decade of reduced dependency on fuel prices with a rapid investment in the adoption of drag-reduction technology. Some solid investment in some high-leverage technology now will pay off well over the next decade and on into the next century.

Turning to another subject, this past year has been one of high turmoil in the AIAA. The relocation of our headquarters to Washington, DC, has not been without considerable delay in journal publication. Practically speaking, a whole new staff was hired to carry on the process. Norma Brennan, our Editorial Department Director, working with John Newbauer, Administrator of Scientific Publications, made it happen. Both John and Norma moved from our old headquarters in New York. Sincere dedication and hard work on their part to minimize the delays and put the journals back on schedule is most appreciated. One of their most notable efforts was to find Managing Editor Bill O'Connor and Evamarie Socha, our new Senior Editor. Although very new to the job, she has impressed me with her highly professional attitude and sense of urgency in completing all the numerous steps to publication. Evamarie is assisted very ably by Chris Celsnak. Special thanks also go to Production Manager Richard Gaskin, graphic artists Reginald Clay Sr. and John McCray, and compositor Simki Michael. As of this writing it appears, thanks to these people, that this journal should be on schedule in early 1989.

The volunteer Editorial Staff (Associate Editors) have been outstanding this past year as well. Their continued dedication to quality and timeliness have been well noted by many authors. Pictures and short biographies are provided to help you identify these individuals. Please look them up at our meetings and discuss your views for a better journal.

Our status as the international journal of aircraft technology is evident by examination of our International Board of Editors. They help locate good papers from their respective countries, and they provide assistance to authors, assuring quality and timeliness of international papers.

A list of reviewers is also provided to give you an indication of the people who maintain technical vigilance over the papers you read. This list includes reviewers from November 1, 1987 through October 31, 1988. I hope we have not missed anyone. If so, let me know and I will add your name to the next list.

As a final note, I have developed a presentation for our local Dayton Section on publishing papers in the journals. If you would like a copy, let me know.

Thomas M. Weeks
Editor-in-Chief