Ethics in Research and Publication

DURING the past year there have been several publicized cases of errors in published research, allegations of fraudulent research, and even charges of a reviewer taking an idea from a paper being reviewed and claiming credit for it. The Publications Committee has adopted a policy on this matter which is reprinted here, and I would like to pass onto the readership a few personal observations.

First, I am very concerned with the issue of authorship. To be listed as an author, the person should have made a significant technical contribution such as an original concept, or the conduct of the work with minimal supervision. Financial support of the work should not be a reason for authorship, whether it be direct or indirect by supplying the laboratory or equipment. In some sciences, financial support is used as the reason for authorship, but I don't believe this should be a substitute for an intellectual contribution.

Second, who is responsible for preventing and detecting of fraud or error? Should it be the institution in which the work was performed or the publication or journal that prints the research results? It seems obvious that the researcher's institution has the primary responsibility. My previous definition for authorship required *minimal* supervision, which may be a contributing factor for error. However, oversight is another matter. There is no substitute for internal research reviews or conferences in which the research discusses his work and shows his data, even raw data, to his peers and colleagues. This provides an opportunity for the author's institution to audit the work while in progress. Unfortunately in this era of megabuck research and minor research fieldoms, I suspect that this step is omitted too often.

Third, the responsibility of the publication: The Associate Editors (AE) of the AIAA Journal send manuscripts to two or three reviewers. This, plus the knowledge and experience of the AE, helps the AE to decide whether the work is a significant contribution worthy of archival publication. And as part of the review process, the reviewers usually examine the methodology and results in some detail. In this process, error is sometimes discovered, and the author(s) is requested to correct the error. One could in fact argue that the review process could be considerably simplified or omitted if the researcher's institution were more diligent in reviewing the work prior to submission. Remember it is not the reviewer's responsibility to detect fraud. The best that can be done is to determine if the results fit into the store of knowledge surrounding the subject. An unusual result would certainly be questioned but the reviewers and AE do not have access to the original data calibrations, scale factors, source programs, etc. Error can only be detected in the methodology or if the results seriously conflict with previously accepted results. It is virtually impossible for the reviewers to detect fraud. That being the case, it can hardly be the responsibility of the AIAA *not* to publish articles that later turn out to be the result of fraudulent research. We do accept technical comments concerning the validity of the work and results, as well as errata, to be self-correcting. The provision for technical comments is an extremely valuable technique for maintaining discipline within the sciences. Suprisingly, very few journals have this feature. Without it, there is virtually no outlet for someone who finds an error in a published paper to inform the technical public of that dicovery. In fact, there are instances where the AIAA Journal has rejected papers because they contained significant technical error, only to see the identical paper published later in a different journal, which had no provision for technical comments. One can question whether the latter type of journal is not a form of vanity press.

However it is not all one-sided. Some Congressmen wish that journals be prohibited from publishing fraudulent research. Aside from the difficulties of detection mentioned previously, there exists the constitutional guarantee of freedom of the press. We cannot permit muzzles to be put on the technical press under any conditions. In fact, one of the strengths of our system is that, if one journal declines a paper, the author can submit it to another. Perhaps the first journal erred in its judgement. It would not be in the interests of new ideas if a declined paper were to be "marked" for life. But it would aid the overall scientific process if every journal had a provision for technical comments.

Finally, can something be done to prevent reviewers from unethically using material from a paper under review prior to its publication? I'm not sure that this is an issue to our readership, because most papers are circulated prior to submission either as a report or preprint, but I would like to hear from our authors, readers, and reviewers on this topic. Is it a problem? If it is, are there techniques to prevent it? Your comments are invited. And, to each and all, let 1990 be a premier year for your research and development projects.

Many thanks go to our Associate Editors whose terms have ended. They are Drs. Tuncer Cebeci, Jorn S. Hansen, Virendra C. Patel, Maurice Rasmussen, and Lee H. Sentman. Ms. Norma Brennan, Editorial Director, has held the AIAA journals together through the trauma of the move to Washington and put them back on schedule. We thank Mr. Eric Selner for the excellent composition services of the AIAA Journal, and Ms. Anne Devine, the new Senior Editor of the AIAA Journal. And, a most hearty welcome to our new Associate Editors, Judson R. Baron, Richard J. Driscoll, ~~Mohammed~~ Hajela, George R. Inger, Gaylen A. Thurston, and David C. Wilcox. We also give tribute to our reviewers, listed below, for steadfast adherence of high standards for publication. Last, but not least, we thank the authors for their patience during the past year.

George W. Sutton
Editor-in-Chief