

from university work (done in Germany!), but that, subsequently, universities centered on better understanding while their industrial counterparts concentrated on extending uses without theoretical bases. Langrish was led to conclude that the relationship between these seemingly divergent camps is not fixed, but dynamic and possibly cyclic. If this be correct, then it is not rational to expect that technical innovations occur solely because of "demand pull" ("relevant research") or "discovery push" ("undirected research"). My own observation is that both paths must be taken and, hence, a mix of support is essential.

Langrish (as Schulman relates) notes that basic forces may be operating to influence industry to turn more to original research because of new concerns about resource depletion, environmental pollution, and ecological factors involving health and human safety. Thus industry (and I hope governmental agencies) must pay more attention to securing a basis for understanding what they are doing. Dr. Schulman concludes that the present spokesmen for science, in urging relevance upon their colleagues, are making "a belated response to social and economic forces that were very visibly building up for much longer than a decade. It is quite possible that the current strong focus on this objective is blinding many people to the dynamics of the science-technology

relationship, a condition in which *neither* nor technology will be well served."

My own view is that it is as meaningless to argue one cause against the other as it is to argue about religions. We have to solve our problems by a judicious balance of support for both short-term and long-term studies, and the responsibility lies with those making decisions in government, industry, and granting foundations, and with those colleges involved in the education of future engineers and scientists where the need for recognition of a balanced approach must be inculcated (including the lost emphasis on ability to manipulate elementary mathematics).

The policy of this Journal will continue to seek such a balance within its capability to do so from the manuscripts submitted. Let us hope that all of you out there, both engineers and scientists, will be encouraged to assist us to so serve you in this respect.

Finally, I wish to thank most heartily the reviewers cited below, our contributors, and the dedicated publications staff of the AIAA for their work in 1974. You can depend upon all of our efforts here to bring you an improved archival journal in 1975.

John P. Breslin  
*Editor-in-Chief*

#### Reviewers for *Journal of Hydraulics*, September 1, 1973—August 31, 1974\*

Abkowitz, M.  
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Borg, Sidney  
Bryson, Arthur E., Jr.  
Casarello, Mario J.  
Chang, Ming. S.  
Ellsworth, William  
Evans, Harvey  
Fabula, Andrew G.  
Geller, E.  
Goodman, Theodore, R.  
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Hecht, A. M.

Hires, Richard  
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Ochi, M. K.  
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White, Frank M.  
Widnall, Sheila  
Wilson, M. B.

\*Because it is difficult to include the reviewers for September, October, November, and December 1974 in this issue of the Journal, they will be listed with reviewers for 1975 in the January 1976 issue.