

letters

Can this dual symmetry replace the traditional asymmetry? The dual transforms proposed here have the merit that they "work." Their weak point is lack of intuitive appeal. Perhaps someone else can lend plausibility to this scheme or else find a fatal flaw therein.

Reference

1. S. A. Hojman, *et al.*, *Nature Physical Sciences* 245, 97 (1973).

WILLIAM E. DEAN

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11/5/76

Austin, Texas

Commitment to nuclear

When a team of people has worked on a development project for a considerable time, expending their best personal energy and resourcefulness in the process, the individuals usually acquire a strong commitment to seeing the fruits of their labors adopted. The degree of this commitment often goes far beyond the level that the merits of the developed product warrant, but such is human nature.

In the field of nuclear energy the United States has become so committed to light-water, enriched-uranium reactors that it is in the process of committing a series of grave errors. Let us accept as a premise that nuclear energy is necessary for the US on the scale outlined by Richard W. Roberts ("Roberts of ERDA sees need for breeder reactor," September, page 77), and that the possibility of a uranium shortage by the end of the century is very real and should be allowed for in present planning. There are then many choices that can be made, and the choice of LWR plus fast-breeder reactor is only one. The safety of fast breeders can never rival that of thermal reactors, and a bad accident, should one occur, could be much more catastrophic than the worst LWR accident. To discuss thermal and fast-reactor safety in the same paragraph is almost to cheat the reader.

Roberts mentions the development of a thorium breeder core to be installed in the Shippingport reactor outside Pittsburgh, and cautions that the thorium cycle, if successful, will only produce enough fuel for itself. Now what is wrong with that? At this stage, when there is sufficient primary fuel (U^{235}) to last until the year 2000, if all reactors would produce enough fuel for their own refueling there could be no fuel shortage for hundreds (or thousands) of years. What Roberts doesn't say, however, is that even if the thorium cycle fails as a break-even breeder it will conserve fuel much more effectively than any other thermal reactor so far manufactured. Thus the date at which the fuel shortage would appear gets postponed by very many years.

It seems absolutely scandalous that in

the light of this knowledge new LWR's continue to be built and planned. Already there exist commercial reactors with far superior fuel economy than the best LWR, but not one has been constructed in the US for routine power production. Moreover, at least one of these reactor types produces cheaper electrical power. The LWR is the world's most offensive U^{235} guzzler, analogous to the worst internal-combustion-engine gas guzzlers. Is it just a coincidence that neither of these products has been phased out?

What, regrettably, is never said is that with the LWR's out of the way the need for the fast-breeder reactor could disappear.

DEREK PAUL

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10/8/76

Agency reviews

I think what G. R. Barsch *et al* (December, page 43) and others are suggesting about the reviewing procedures of NSF and other government funding agencies makes perfectly good sense. It appears only logical that the authors of a proposal should have a chance to respond to reviewers' comments before any decision is made by the agency. I also think that the agencies such as NSF should make every effort to ensure that their reviewing procedures are as uniform as possible. One way to accomplish this would be to use one panel of experts to review all proposals in each sub-area of research, with the panel selected at random from a complete list of experts in each sub-field compiled by an independent and unbiased agency.

S. S. JASWAL

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12/31/76

More on industrial research

Alfred Sommer's letter of advice for people engaged in industrial research (September, page 9) troubled me in several ways. First of all, he was evidently moved to write his letter because he has witnessed a number of "brilliant young men whose careers petered out as they grew older and, conversely, . . . mediocre young men who seemed to grow steadily in stature and achievement." Based on this statement alone, I question Sommer's ability to judge brilliancy and mediocrity.

The major suggestion of the letter to the researcher is to "pick the right project." I don't think the newcomer in industrial research is likely to be given such a choice at all; only the more seasoned and proven professional is usually entrusted with this freedom.

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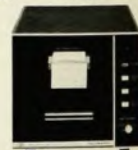
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letters

end a hopeless effort, the letter suggests that one of the impediments may be the government official who "will not usually discontinue [a hopeless project] because the originator does not like to admit faulty judgment." On the contrary, in my twelve years of experience on government-sponsored research, I have found it is much more likely that the researcher will continue to convey unwarranted enthusiasm about the promise of his project to gain continued support.

I think the advice given in the letter under the heading "specific rules" is quite sensible, and it moves me to attempt to add some of my own. I suggest that an industrial researcher who wishes to have his labors appreciated (and rewarded) should begin by trying to gain a mature appreciation of the motivations and expectations that moved some decision-maker to support him in his research. In other words, he should use his best judgment to determine what will satisfy the needs of his customer (boss or outside sponsor) and use that understanding to help define his own priorities and goals on the project.

MARVIN KING

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12/9/76

THE AUTHOR COMMENTS: Marvin King is entitled to "question my ability to judge..." but a more specific justification for his opinion would have been useful.

When I stressed the importance of choosing a good project it did not occur to me that this could be interpreted as applying to young people just out of college. I obviously referred to people who have worked in research for five, ten, or more years.

King apparently had happier experiences with government agencies during his 12 years than I have had during 40 years.

I probably missed the point of the last two sentences. To me they seem to be an expanded version of my suggestion to pick the right project.

ALFRED H. SOMMER

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12/9/76

New letters journals again

The cases made in response to the criticisms of N. D. Mermin and K. G. Wilson by the editors of the two new letters journals *Communications on Physics* and *Letters in Mathematical Physics* in the recent correspondence in your columns (March, page 11) are not very convincing. While the incontrovertible dominance in this market of *Physical Review Letters* may be somewhat irksome and inconvenient for non-US scientists, the remedy, as Mermin and Wilson point out, is surely

to build up the existing array of competitive letter facilities rather than to launch new ones. The option, suggested by A. W. Kenneth Metzner, of creating special high-speed sections within existing journals has, in fact, been implemented in the British IOP *Journal of Physics* series since their inception in the present form in 1968.

The existence of these special letters sections would seem to weaken considerably the main arguments stated for starting the new journals. To take the points of David Caplin et al in turn (December, page 43) and speak for *Journal of Physics A: Mathematical and General*, since 1968 our letters section:

- ▶ has allowed Europeans to feel that they are part of the refereeing community;
- ▶ has resolved problems by quick telephone calls;
- ▶ has not levied any page charges or had publication delays or had difficulties with reprints, and has had a wide circulation and readership;
- ▶ has used European (and even American!) editors and referees outside our national boundaries, and accepts letters in a variety of European languages, and
- ▶ has combined the virtues of careful refereeing with rapid production (the median publication time in 1975 from receipt of manuscript to publication was 7.6 weeks, the mode was 5 weeks, and the rejection rate was almost 60%).

In addition, we are not unreasonably stringent on length, and we employ properly set-up type and an attractive format. On the face of it, therefore, none of the arguments put forward by these authors can be entirely substantiated.

Most of M. Flato's arguments (October, page 75) for *Letters in Mathematical Physics* are similarly dubious. If he is aware of the *Journal of Physics A* letters section he must believe it not to be suitable for his sort of mathematical physics, for it would appear to satisfy all his other requirements. This would be a fine point to sustain because our policy puts no bar on any area of mathematical physics, as has been discussed in recent correspondence in the IOP *Physics Bulletin*.

Most European ventures have to be centered in one particular country; in our case the parent organization is located in Britain and operates in British currency. *Journal of Physics A*, like all the Institute's journals, is a Europhysics journal recognized by the European Physical Society as meeting the Society's criteria as an international European journal, with the appropriate provision for ensuring high standards of international scientific research journalism.

The appearance of these two new journals must to some extent, however, have indicated a deficiency in the existing facilities for letters publishing in Europe, and it would be interesting to understand more exactly why the IOP, for instance,

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