Letters

Transferring Solar Technology

Allen L. Hammond's proposal for a cooperative international effort to share the costs and benefits of a rapid expansion in deployment of on-site solar power systems (Editorial, 12 Aug., p. 623) is both timely and compelling.

However, at least until recently, most attempts to transfer solar and other nonconventional energy technologies to the developing countries have enjoyed short-lived success. Ever since the first solar irrigation pump was installed along the Nile River in 1913, such devices have usually fallen into disuse shortly after the Western technologists who introduced them left for home. Lack of spare parts, failure to perpetuate maintenance and repair procedures, and an insensitivity to local needs and customs have resulted in the perception that "appropriate" energy technology devices do not work, when in fact it is the process of technology transfer that has usually been at fault. Even today, we have only a particularly poor understanding of this process, especially the process of technology transfer to small communities. Worse, we have an equally poor understanding of how local capacities for technological development can be stimulated. Recent successes, such as achieved with the French irrigation pumps which Hammond mentions, offer hope that these problems can, with considerable effort and care, be understood and overcome (*1*).

Widespread adoption of new energy technologies involves considerable unknowns for both developed and developing countries. Many unknowns (costs, integration with conventional energy systems, social and economic effects, and so forth) will be common to both groups of countries. A solar energy development partnership is logical and would be mutually advantageous. But Hammond is correct in implying that it would have to be a partnership of equals, with both sides actively applying the knowledge gained to their own particular situations.

Such an approach could yield a marked improvement in the climate of political and economic relations between the industralized and developing worlds. It could also have a significant influence on the manner of future international cooperation in science and technology. It would be a boon to economic development and progress in satisfying basic human needs. And by contributing to the reduction in cost of an environmentally and socially benign alternative to petroleum energy, it would be in the common interest of us all.

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References

1. J. W. Howe, J. A. Bever, J. S. Holtzman, W. E. Knowland, J. J. Tarrant, *Energy for the Villages of Africa: Recommendations for African Governments and Outside Donors* (Overseas Development Council, Washington D.C., 1977).

San Joaquin River Misplaced

Luther J. Carter's timely article (News and Comment, 12 Aug., p. 643) on the problems of Auburn Dam contains some interesting and even startling disclosures. But much the most startling information is provided by the accompanying map which shows the San Juaquin [sic] River originating at Sacramento at the confluence of the American and Sacramento rivers.

Californians know theirs is a tectonically active state and accept earthquakes, erosion of the coast, tilting of the land, and changes in drainage patterns as continuing geologic processes. Nevertheless, to discover that almost overnight our largest and best-known north-flowing river has reversed its course and that its point of origin is near the state capital is somewhat disquieting!

For the benefit of those readers of *Science* whose knowledge of California geography may coincide with that of the cartographer, the San Joaquin is still flowing northwestward (albeit, as the result of the prolonged drought, with diminished flow) and still originates in the south-central Sierra Nevada in the vicinity of Sequoia National Park. Meanwhile, the Sacramento River continues to flow southward past Sacramento (where it is augmented by the American River) to a confluence with the San Joaquin in "the Delta area," whence the combined waters empty westward into Suisun Bay and thence eventually into San Francisco Bay.

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Seveso: "Encouraging Evidence"?

The nature, the extent, and the possible responsibilities involved in the tragedy of Seveso, Italy, have been reported and discussed both in Europe (*1*) and the United States (*2*). According to a report in *Nature* (*3*), the pharmaceutical company Hoffman–LaRoche has recently given wide publicity to its own internal newsletter, in what seems to be an effort to counteract criticisms directed toward its subsidiary, the Givaudan Corporation, which owns the plant where the accident occurred. Almost simultaneously, *Science* (News and Comment, 8 July, p. 143) printed a report that cites "encouraging evidence" and "grounds for optimism" concerning the situation in Seveso, admittedly originating from the Hoffman–LaRoche newsletter. We believe the American scientific community deserves less biased and more critical information.

The "encouraging evidence" cited in *Science* concerns the children (number not given) affected by chloracne, of which all but three of those visited (number not given) by specialists are now said to be expected to recover completely. The article then refers to the degree of safety achieved by reclaiming some houses and gardens in an unspecified extension of the "less affected" area according to an undescribed wipe test.

Additional "grounds for optimism" given in the *Science* article include an announcement from the local authorities that 600 evacuees will finally be able to go home soon and the comment by Hoffman–LaRoche that these people will be in no danger, since they had lived in their houses for 3 weeks before they were decontaminated, allegedly "without ill effects." The article does not remind the readers that the delay in evacuation might be related to the fact that dioxin