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COVER: Rift Valley Fever has spread extensively in Africa, and epidemiologists worry that it may be carried to other parts of the world. The Rift Valley Fever virus is spherical, 100 nanometers in diameter and has a brush border. This electron micrograph shows several viruses in a laboratory-grown cell. The map depicts in the lighter shading the African countries that have reported evidence of the virus. See story p. 170. (Micrograph: Owen Wood and James M. Meegan, Yale Univ.)

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LETTERS

More acid

In the Feb. 2 and Feb. 9, 1980 issues of SCIENCE NEWS there is a two-part article by Susan West on acid deposition. I do not wish to quibble with her choice of adverbs and adjectives, which appear to me to add to the emotionalism of the issue rather than clarify the facts.

However, in the next to last paragraph of the Feb. 2 article, she states, "The Electric Power Research Institute insists that not enough data are in to justify restrictions." This is not our position. We understand that policy decisions must be made in the face of insufficient information. The point that we made in testimony is that in determining the course to follow, the policy maker must understand what the facts are; he must differentiate between what is unproved hypothesis and proven fact. EPRI does not set or debate policy for the electric utility industry. Our objective is to gather scientific data for use in policy making by others. To remain credible, EPRI must sponsor only objective non self-serving research. We believe our Adirondack study to be the rule, not the exception, for the quality of air research.

With regard to acid deposition, we know that rain in the Northeast is on the average more acidic than in, let's say, the South Central states. But whether acidity has been increasing remains uncertain. Those monitoring stations operating over a number of years have shown no trend in either direction. Similarly, we know that high levels of acid can cause plant and animal damage. But whether the levels actually experienced in the environment are causing significant damage remains speculative. Finally, it is not clear at all what the effect of additional or reduced emissions of sulfur and nitrogen oxides will be on the deposition in a given area.

These are the reasons that EPRI initiated a multifaceted acid deposition program. It is geared at improving our understanding of the mechanisms of formation, transport and deposition of atmospheric acids, as well as ecological effects, so that utilities, government policy makers, and others can make better decisions. EPRI's role is not to advocate policy but to develop the necessary fact base.

René H. Malès
Electric Power Research Institute
Palo Alto, Calif.

It is hard to make a critical comment about the Acid Rain articles by Susan West, which overall were excellent.

However, Ms. West underemphasizes the fact that practical air pollution control technology exists. It is operative in Japan on a grand scale. The article gave the impression that this technology is costly and in the distant future.

Harold J. Rafson
Highland Park, Ill.

The first wall

Your article on the Starfire machines (SN: 2/9/80, p. 92) eloquently described how pragmatic the approach to fusion power can be in the eyes of design engineers. What Mr. Thomsen's article showed basically was the internesting of primary and secondary cooling loops, which carry the blanket heat to the steam generator and turbines. It implied that magnetic confinement was the preferred way to go, a controversial point with laser and heavy ion fusion proponents. Several comments were made regarding the first wall and I would like to elaborate on that problem, which appears tiny in the scope of the article. At Los Alamos we are designing a $35M linear accelerator to drive a 100 mA continuous duty deuteron beam into a liquid lithium target for the express purpose of generating 14.3 MeV neutrons to study materials damage effects in the first wall. The entire project cost is projected to be $105M and the facility will be operated at Hanford, Wash. This machine is scheduled to go on line in 1984 and may supply first wall materials damage results and recommendations to the fusion energy program by 1990. Far from having a first wall final decision of "ferritic steel" as Mr. Thomsen stated, an expensive and dedicated effort of 10 years is required before even this detail can be specified. This in no way should lessen our confidence in fusion power but points out the amount of effort needed to provide hard engineering information for Starfire.

Donald J. Liska
Los Alamos, N.M.

The rest of the iceberg

Your article on human factors at Three Mile Island (SN: 2/23/80, p. 122) illustrates the tip of the iceberg rather nicely. One has only to experience the contempt of engineers and comptrollers in the design phase of any project to see why the world is slowly grinding to a halt. Although nuclear energy raises the stakes, and the "human error" of the operator is a convenient scapegoat for the human arrogance of the design teams, the problem goes much further and deeper than is generally realized.

The problem is generated in engineering schools and other educational institutions where "theory," which is easy to teach, has replaced case studies and eliminated handbooks. The latter deal with reality and are, as a result, beyond the scope of the professor. Thus students graduate, completely unprepared for any design assignment. This includes not only human factors, but design of electrical networks, mechanical assemblies, etc., etc. Just try to find equipment with conveniently located test points for measurements, easily replaceable components, or diagnostic information or even operating instructions that make sense....

With this kind of progress, we needn't worry about energy, inflation or the Russians.

L. F. Goeller Jr.
Haddonfield, N.J.