

# to the editor

## Weather modification in war

I just finished reading the article by Louise A. Purrett concerning the use of weather modification as a weapon in war (SN: 4/15/72, p. 254). To say the least, I am very disturbed that our nation or any other nation would ever stoop so low as to use one of the elements that give life to us to take away life. I do not know if weather modification has been used in Southeast Asia by the United States, but the point is, why does man have to tamper with whatever he can get his hands on? Granted, influencing the weather can help man, but it can also do harm in trying to prevent it.

Meteorology is a science where there is still much to learn. If we still are searching for answers in the general circulation of the atmosphere, still do not know what causes tornadoes, and really don't know how or why hurricanes form, why are we trying to modify something we only partially understand and why, of all things, do we want to use weather against our fellow man? Man has already done enough to harm the atmosphere through all the hydrocarbons that we have thrown up to the winds.

Bravo, Sen. Pell! I hope and pray that your treaty is accepted and abided by throughout the world.

William Bunch  
Meteorologist  
WICE Radio  
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## Going beyond emotion

Your article "Limits to growth: Debating the Future" by Richard Gilluly (SN: 3/25/72, p. 202) is a much better written and better balanced article than many we have seen recently on the same subject. You are to be complimented on an article that goes beyond the first quick emotional responses.

I believe we will soon see a more penetrating debate develop about the issues raised in *Limits to Growth* and *World Dynamics*.

Jay W. Forrester  
Professor of Management  
Massachusetts Institute of Technology  
Cambridge, Mass.

## Economics of the space shuttle

Everly Driscoll's "The story of an evolving shuttle" (SN: 4/1/72, p. 220) is a highly refreshing and informative piece of writing on a topic that has been dealt more than its share of confusing articles.

There is one point, however, I would like to clarify. A RAND Corp. research analyst quoted in the article implies that satellite repair and reuse would not be a valuable shuttle capability since "many satellites, at the end of their lifetime, are obsolete." What this neglects completely is that with a rapidly developing tech-

nology and modular satellite construction, satellite users might benefit substantially from repair, reuse and refurbishment throughout the whole course of the satellite's lifetime, beginning perhaps very soon after its launch.

This possibility should be investigated by outside experts. As the same analyst indicates, a major question about the favorable Mathematica report on the shuttle arises out of the estimates of payload benefits supplied Mathematica by the Aerospace Corp. and by Lockheed. An independent evaluation of all of these benefits is essential to anyone deciding on the value of the proposed space shuttle.

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## Orchids

If I were to say "Heartiest Congratulations" on this occasion of your 50th anniversary of SCIENCE NEWS, I would feel that while it is in order to do so, much would be left unsaid that I feel from deep inside me.

I started working as a medical and scientific illustrator in 1940 and just retired one year ago. Soon after going to work for the N.Y. State labs here in Albany I became aware of the SCIENCE NEWS LETTER and got in my licks at it at the periodicals table in our fine library. It was and always has been a source of good science reporting, a place where I could get away from the sometimes too narrow concerns of our own researchers and see the world from a wider view, with some concern for the significance of the detailed work I was engaged in. It gave me courage as well as just information, and helped me to formulate my own ideas. In short, it made my 30 years at the lab much brighter for the refreshing and brief articles to balance the detailed and often tedious style of more learned journals.

Your SCIENCE NEWS has been a friend of mine for many years, and it would be a shame not to take the time to tell you. Keep your eye on the "Economic growth versus survival" theme. I wish there were as good a reporter of the political scene as you are of the scientific. I have a feeling you don't need me to tell you what a good job you're doing.

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# films OF THE WEEK

**THE WIND IS RIGHT.** 16mm, color, sound, 28½ min. Centers around a project undertaken by an industrial arts class in a Michigan high school—the construction of a single place biplane during four semesters of classroom work—and how the students discovered the world of aviation in the process. Culmination of their efforts was watching the airplane being soloed on its maiden flight by Col. Paul Poberezny, president of the Experimental Aircraft Association. Other areas of aviation education are also explored. The importance of general aviation to our economy and the vital role aviation education plays in school are also shown. Audience: elementary, secondary, general. Free loan from FAA Academy Film Library, Dept. SN, Box 25082, Oklahoma City, Okla. 73125.

**ABOUT ANIMALS.** 16mm, color, sound six films 8½ to 11½ min. Too often children treat animals in the classroom as mere playthings or performers, missing the myriad lessons to be learned. Or teachers are reluctant to introduce wildlife pets as a part of the curriculum because they may lack confidence in handling them. Each film touches on how a species has adapted to its natural environment, how nature maintains a balance, how a species was domesticated, or how a species evolved. Titles include: Gerbils, Setting Up An Aquarium, An Aquarium in Action, Guinea Pigs, Hamsters and Salamanders and Lizards. Audience: grades K through 6. Purchase \$120 to \$150 each from Xerox Films, Dept. SN, Stamford, Conn. 06904.

**THE DRIFTING OF THE CONTINENTS.** 16mm, color, sound, 50 min. In the last few years, developments have come from discoveries in paleomagnetism, oceanography, and seismology. And they are attracting every earth science from geochemistry to earthquake engineering. This is the first time the complete story has been told. Scientists now know where each continent was in relation to the Poles at any given time. For example, Australia has performed amazing gyrations around the South Pole, and India at one time had nothing to do with Asia. Iceland did not exist a hundred million years ago, and it is widening at the rate of 10 centimeters a year. One section of California is being carried northward on one crustal "plate" as the rest of the United States goes south on another "plate." Film is a study of the revolution of geology which is turning the earth sciences upside down. Audience: high school, college, adult. Purchase \$500 or rental \$50 from Time-Life Films, Dept. SN, 43 W. 16th St., New York, N.Y. 10011.

**THE STORY OF OAK RIDGE OPERATIONS.** 16mm, color, sound, 28 min. The breadth and scope of the nation's atomic energy program—from the synthesis of minute quantities of manmade elements for special research to the highly automated production of ton-quantities of enriched uranium for fueling nuclear power plants—are embodied in the programs of the AEC's Oak Ridge Operations. As one of the AEC's largest and most diverse field offices, it is responsible for the operation of plants and laboratories in four states and Puerto Rico which employ some 20,000 persons in programs of nuclear research and production. Film covers the major activities of Oak Ridge Operations. A major segment of the film explains how three gaseous diffusion plants are meeting the demand for enriched uranium here and abroad. Audience: high school, college, adult. Purchase information from National Audiovisual Center, Dept. SN, Washington, D.C. 20409, or free loan information from Audiovisual Branch, Dept. SN, Department of Public Information, U.S. Atomic Energy Commission, Washington, D.C. 20545.

Listing is for readers' information of new 16mm and 8mm films on science, engineering, medicine and agriculture for professional, student and general audiences. For further information on purchase, rental or free loan, write to distributor.