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## Letters

### In defense of nuclear disarmament

"Superweapon Software Woes" (SN: 5/14/83, p. 312) presents one of the best arguments for nuclear disarmament that I have seen in some time, even though that may not have been the primary purpose of the article.

It is stated that computers are being used more and more for all kinds of military purposes such as the targeting and flight of missiles. It is also stated that the programs controlling these uses have errors built into them which are impossible to remove. While "the probability... should be very low" and "practically all errors... have been found" yet "no human-designed system is perfect."

Statistical analysis tells us that 100 percent performance and freedom from error is impossible. It asks what percentage of error is acceptable. Murphy's Law and human experience tell us the same thing — if something can go wrong, sooner or later it will.

A computer error in a bank account may be annoying. In other situations it may be more serious, or even tragic. But in this nuclear gamesmanship business, where tens and even hundreds of millions of lives are at stake, even

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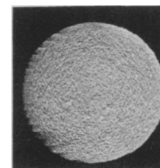
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Cover: A full-disk image of oscillations is represented by the alternating light and dark patterns on the sun's surface. The image was made at the Kitt Peak Solar Observatory, in Tucson. It has been filtered and computer-enhanced to reveal the complex pattern of thousands of oscillations that would not otherwise be visible even with the aid of a telescope. (Photo: © Aura, Inc., Kitt Peak National Observatory, 1972)



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one critical error is impermissible. As the writer of the article quietly concludes: "Even one little mistake could be one too many."

What's the solution? "No nukes!"

*Karl E. Buff  
Mountain Home, Ark.*

### Fire suppression and varying terrain

Fire suppression techniques in southern California may, as Richard Minnich concludes, make fires worse ("In California, is more burning better?" SN: 3/26/83, p. 198). That effect may occur quite independently of other factors. However, I'm curious as to whether his study includes examination of the local microclimatologies the varying terrains and proximity to water can produce.

The typical large-scale interior dome of high pressure which creates the high-speed winds out of the desert through the canyons is a synoptic, or large-scale, weather system. Still, prevailing wind vectors and dewpoints during these episodes had ought to be included in such an analysis on a station-by-station basis, if possible. Even the effects of synoptic scale heating and drying can vary widely when microclimatology is investigated.

*Don Paul  
Detroit, Mich.*

### An intriguing question

The fascinating article "In With The Older" (SN: 5/7/83, p. 300) by Cheryl Simon raised the intriguing question of why so many different taxonomic groups of marine invertebrates developed the shell-forming habit about 570 million years ago at the beginning of Cambrian time. The article briefly mentioned a change in sea water chemistry as one of the previously suggested causes of this event and, as an alternative, the possibility that hard parts such as shells may be an inevitable product of increasing anatomical complexity.

Does not consideration of Darwinian theory immediately suggest a more plausible cause? If natural selection abruptly began to favor organisms with external armor, we have the implication that such armor had not been advantageous earlier. Why is it advantageous now? One clear benefit it affords is protection against predators. Could it be that few or none of the Precambrian animals were carnivores? Maybe development of carnivorous behavior made external armor advantageous.

This is hardly a new idea, but it has been neglected in articles I have read concerning the recent resurgence of interest in this question.

*Craig Bond Hatfield  
Toledo, Ohio*

JUNE 18, 1983

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