LETTERS

The Missile Debate

R. Jeffrey Smith's articles on U.S. strategic thought and the MX missile (News and Comment, 2 Apr., p. 30; 9 Apr., p. 150; 16 Apr., p. 270; 23 Apr., p. 388; 30 Apr., p. 492; 7 May, p. 596; 21 May, p. 828) make a commendable contribution to the current debate over the nuclear arms freeze. These articles expose the faulty thinking behind the Reagan Administration's claims that the Soviet Union has achieved superiority over the United States in nuclear weapons.

However, Smith dismisses too lightly the question of why the Administration is trying so hard to sell the United States on a nuclear arms race on the basis of such a deception. . . . In the book *Protest and Survive* (Monthly Review Press, New York, 1981), Daniel Ellsberg argues that the Reagan and Carter administrations have been deliberately seeking a first-strike capability in order to threaten the Soviet Union with annihilation in case of a confrontation over a Third World country like Afghanistan, Iran, or El Salvador. . . . Striving for a first-strike capability today is not just a ticket for an incredibly expensive arms race in the face of the law of diminishing returns. If the Administration ever believes the first-strike capability has been attained, then the slightest miscalculation during a Third World crisis could turn into a nuclear war. That is one reason why millions of people here and in Europe are taking actions to stop the nuclear arms race.

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Science and R. Jeffrey Smith are to be congratulated for the superb News and Comment series on basing modes for the MX missile. However, beyond the exhorbitant expense, the environmental danger and the Strangelovian nature of the whole affair, there is another, more basic problem that is not mentioned: whereas the basing mode has received the bulk of political, military, and technical scrutiny, the MX missile itself has remained relatively unscrutinized. Ironically, the arguments against the missile—whatever its basing mode—are even more cogent than those already raised against the various plans for its deployment.

Like the planned Trident II, the MX possesses such hard-target lethality as to make it a credible first-strike weapon and a threat to Soviet land-based intercontinental ballistic missiles (ICBM's). . . . An important commandment for survival in the nuclear age should read "Thou shalt not threaten thy neighbor's deterrent." Whether the MX is based in a vulnerable or invulnerable manner, it violates that commandment and must be opposed.

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The recent series of articles by R. Jeffrey Smith are among the clearest and most detailed analyses of the topic it has been my pleasure to read.

While reasonable persons may differ in their view of the necessity or lack thereof of an arms buildup, no thinking person should arrive at a conclusion without at least reading these articles. . . .

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In response to Smith's article "Carter's plan for MX lives on" (News and Comment, 30 Apr., p. 492), could it be that "BMD" stands for "Bury Me Deep," where the "Me" could mean missile, me, the citizenry, or even civilization?

Or, maybe it means simply "Big Money Defense."

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Fossil Maize Pollen in Mexico

The report of maize pollen 70 meters under Mexico City in a layer of Pleistocene age has been publicized (*1*) and discussed (*2–3*) enough to warrant reexamination of the evidence. At the request of its finder the identity of the pollen has been checked and confirmed (*2*). To suggestions that the supposed Pleistocene pollen is a contamination brought down from younger levels in coring, it can be pointed out that the pollen was found in samples taken from the intact interior of precision cores.

Overlooked meanwhile have been (i) the basis for assuming that the 70-meter level is of Pleistocene age; (ii) the effect of the well-known subsidence of the area cored; and (iii) ample evidence elsewhere in the Basin of Mexico of two

cultural horizons, Archaic 2000± to 0± B.C.) and Nahua (A.D. 800± to 1519) separated by lava and volcanic ash (*4*).

In 1948 and 1949, two cores, Madero and Bellas Artes, from the center of the colonial city of Mexico were made available for study at Oberlin College in the hope that they might furnish information as to conditions outside the limits of continental glaciation. The cores, 3 to 5 inches in diameter and 70± meters in depth, were generously furnished by the distinguished engineer Leonardo Zeevaert, whose studies preceded the successful construction of the 43-story Latino Americana at a site notable for subsidence (*5*). Kathryn Clisby analyzed the pollen (*6*), and at her wise insistence Fred Foreman examined the sediments (*7*).

So far as I can determine, belief in the Pleistocene record of the cores has been shared by all concerned and rests upon a suggestion by Kirk Bryan (*8*), whose caution has not been sufficiently appreciated. Since upland soils whose fossil content proves their Pleistocene origin are well known in the Basin of Mexico, it seemed reasonable to suggest that cognate horizons had accumulated as sediment in a central deep. Thus for the equivalent of a fossil soil of known Tazewell-Cary age, Bryan wrote: "*Se supone* (sic) *que existe en el centro de la Cuenca*," but further, "*No se pretenden resultados absolutamente conclusivos*," followed by a clear statement of the need for complete study.

Actually Foreman (*7*) found no evidence that there had ever been a deep lake; instead the presence of oölites, sand, root-holes and roots indicated a succession of swamps and shallow lakes. Puzzled, yet apparently believing in the antiquity of the cores, Foreman suggested that excess water must have drained away into permeable lake margins as a sequence of surfaces piled up. I am unable to find mention of the likelihood that the sinking of successive surfaces rather than a building up from the bottom of an original basin was involved.

Yet Zeevaert's profile (*5*) of seven cores shows layers sloping downward some 20 meters in 4 kilometers to their position in the two deep cores studied. Projected inward from the numerous sites (*4*) where the Archaic, ash or lava, and Nahua horizons occur within a few meters of the surface and given a mean annual rate of less than 4 centimeters of subsidence, the Archaic horizon could easily have sunk to 70 meters in the 2000± years since it was covered by the eruption of Xitle. The absence of artifacts along with the maize pollen is in no way remarkable; exploration of the 70-meter level has been limited to two slender cores; nor were the one-time swamp and shallow lake surfaces favorable to heavy accumulation of artifacts.

The pollen profiles (*7*) noted by Foreman as an essential complement to the sediment record show a threefold pattern. The top 6 to 8 meters record a complex of composites, amaranth (doubtless the crop *quelite*), and grasses, including maize. Along with an abundance of artifacts in the surface *relleno* or fill, this complex is a valid index of Nahua lake-margin or *chinampa* horticulture. Below it are some 50 or more meters of the old surfaces of shallow lakes and swamps mixed with weathered and unweathered volcanic debris until the 55.6-meter level is reached in Madero and the 71.2-meter level in Bellas Artes. Here the complex reappears, including maize pollen in Bellas Artes, thus reconciling the core record with that elsewhere in the basin. Nor is the recent evidence of identity of maize and tetraploid teosinte pollen (*3*) necessary to explain Pleistocene occurrence of apparent maize pollen because there is good evidence of the cultivation of maize before 2000 B.C. (*9*).

Subject always to further research it is my judgment that the pollen at 70 meters is an index of Archaic horticulture and not of wild Pleistocene maize. I deeply regret any embarrassment this may cause others but am less concerned that it makes nonsense of my efforts (*10*, p. 526) to relate the two Mexican profiles to Pleistocene events than satisfied that it fits the Archaic-Teotihuacan-Nahua sequence to which my esteemed friend and *tocayo* Pablo Martinez del Rio invited my attention in 1948.

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