the knowledge and technical support for the government agencies to efficiently, effectively, expeditiously, and economically tackle this silent epidemic.

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In Defense of Nannobacteria

Enough! As one of the discoverers of mineralized nannobacteria on Earth (*1*), I must come to their defense. They are so abundant in samples I have studied that I believe they may make up most of Earth's biomass. Yet they appear to be nearly unknown to many biologists, hence the questions about putative Martian nannobacteria (Letters, 20 Sept., p. 1639; Reports, 16 Aug., p. 924).

Nannobacteria with cells 0.1 to 0.4 micrometer in diameter have been cultured by Allan Pentecost from the hot spring waters at Viterbo, Italy (*2*). Nannobacteria 0.05 micrometer in diameter have been found in thickly packed colonies on decaying leaves in the San Marcos River in Texas (*3*). K. K. Akerman *et al.* have found forms they term "nannobacteria" in blood (*4*). If these are not nannobacteria, then what are they? Until we know, perhaps the term "protobiont" or "quasibiont" might be used.

Microbiologists should be aware that there are vast numbers of organisms detectable by scanning electron microscope in the 0.01- to 0.2-micrometer range happily precipitating all sorts of minerals, acting symbiotically to precipitate organic hard parts, and generally exerting what appears to be an enormous influence on Earth's surface chemistry.

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Cold Neutron Production

We disagree with the statements in Andrew Lawler's article "U.S. neutron scientists settle for less" concerning the availability of cold neutrons at pulsed neutron sources (PSs) (News & Comment, 9 Aug., p. 728) that cold neutron production is merely a "theoretical possibility" and that the associated technology lags behind that for reactors.

Because pulsed sources produce high fluxes of "hot" neutrons in a natural way, perhaps not everyone is aware of the success with which cold neutrons are being produced and exploited at PSs. It is actually easier to produce cold neutrons at a PS than at a reactor. The overall heat load is much less for the same peak neutron flux, and the required moderators are small in dimension and can usually be inserted into the neighborhood of the spallation target in a simple way. Thus, a moderator change can be accomplished in a few weeks. The cold moderator design, construction, and installation can be done within normal operating budgets. This is in contrast to the case for reactors, where the installation of a cold moderator is a major project requiring separate funding and usually a significant shutdown for installation. Moreover, the spectral and pulse characteristics can be tailored to fit applications.

The existing pulsed spallation neutron sources owe much of their success to cold moderator technology. The scientific prob-