natural environments (even those living under strong starvation) and by theoretical considerations to be impossible.

If we consider the minimum amount of DNA, ribosomes, enzymes, lipids, and so on that make up an organism, we can calculate a theoretical minimum diameter of about 0.3 micrometer for a living cell.

We have measured several thousands of aquatic bacteria by different techniques, such as epifluorescence microscopy (EFM), scanning electron microscopy (SEM), and transmission electron microscopy (TEM), and we have also determined mass and DNA content of single bacteria (with TEM and EFM, respectively) by using electron energy, high-resolution cameras, and advanced image analysis techniques (*1*). All our measurements in lake, sediment, river, soil, snow, and rainwater samples by EFM confirmed that 0.2 micrometer was the smallest bacterial diameter. There are DNA containing particles, mostly viruses, smaller than 0.2 micrometer in the aquatic environment, and some viruses can be as large as 0.2 micrometer (*2*). Both theoretical considerations and measurements, however, show that the smallest bacterium we can imagine has a volume of 0.005 square micrometer. If it is coccoid, the diameter is 0.2 micrometer.

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1. M. Loferer *et al.*, unpublished data.
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Response: I appreciate the theoretical arguments of the biological community that the so-called "nannobacteria" are far below the calculated lower limits of life *as we know it*, but there are unquestionably biological-looking objects in a great many minerals, and despite their minute size they are clearly not artifacts (*1*). Virus particles, which have about 1/100 the volume of most nannobacteria, would not be classed as "inorganic mineral formations," and yet they function virulently as quasibionts.

I have cultured nannobacteria on stubs of metallic aluminum in tap water, and I recently found that the mucus-like nannobacterial globs fluoresce strongly in ultraviolet light, signifying that they contain organic molecules. No fluorescence is observed on bare parts of the stub or on the container, so they seem to be metabolizing the aluminum.

It is heartening to see that a few scientists in the medical community are now recognizing nannobacteria of the same size and morphology (*2*) that I find in the mineralogical world. In buckshot-style reconnaisance, I have found them in the human intestinal tract, on human hair, and even in human teeth and dental plaque. For those who are curious, nannobacteria can be captured in abundance by evaporating water from a faucet or seawater to dryness and examining the residue under the SEM at a magnification of 50,000 or more (salt must be back-dissolved out for best results). Good hunting, you biologists!

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Corrections and Clarifications

An article by Dennis Normile about a report by Japan's committee on fiscal reform (News & Comment, 13 June, p. 1642) incorrectly described its recommendations regarding the International Thermonuclear Experimental Reactor (ITER) project. The committee has recommended that Japan not proceed with an invitation to host the project during an upcoming 3-year period of special fiscal reform. The report does not mention a date for the start of construction.

In the 18th line of the caption for table 1 (p. 1901) of the report "The activity and size of the nucleus of Comet Hale-Bopp (C/1995 01)" by H. A. Weaver *et al.* (28 Mar., p. 1900), "ro^{-3} kg s^{-1}" should have been "10^{-3} kg s^{-1}." The formula in reference 6 of the same report (p. 1903) was incorrect. The correct formula appears below.

$$d_N = [(2.99 \times 10^8)\, 10^{0.2(m_{sun} - m_{comet} + 5 \log r\Delta + 0.035\phi)}] / A_p^{0.5}$$

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.