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Cover: Researchers have no detailed images of the protein coats surrounding the core of the AIDS virus (HIV). To develop drugs that might interfere with the assembly of the outer HIV coat, scientists have developed a computer model (right) that relies on the known structure of the coat, or capsid, of a family of smaller viruses (left), which includes those that cause polio and the common cold. Other investigators have developed a similar computer model for the protein structure of the inner coat of the AIDS virus. (Image: T.J. O'Donnell/Searle)

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Letters

'Surface chauvinism'

The most common methods of "cooking" primordial soups, as described in "Recreating prehistoric enzymes" (SN: 5/5/90, p.285), all reflect surface chauvinism. What if life originated not on the surface, driven by the sun, but rather in an oceanic abyss, driven by volcanic heat?

The environment would be more constant — no night to undo day's advances, no changing water levels, no climatic variations — and the high temperatures and pressures enzymes artificially create would already be there. As life developed, a quantity of dead material would accumulate in the cooled areas. One can imagine a bacterium that could finally survive the cold, feasting in a predator-free environment. And imagine life gaining a foothold in the treacherous surface in early areas resembling today's Iceland, where continental splitting is coming to the surface. If a pressure-cooker would get bigger and better compounds more quickly, it would increase the likelihood of such a scenario.

A possible test: If one form of life originated in the trenches and another in the tidal basins, it would seem that a genetic fingerprint would be left indicating that. Most current life there could represent a reinvasion, but exceptions might also be found.

*Fran Tabor
Kalispell, Mont.*

Plasmas ignored

There is one thing missing from "Cosmic Evidence of a Smooth Beginning" (SN: 1/20/90, p.36) and the subsequent letters to the editor (SN: 3/31/90, p.195) that surprises me. Why no mention of plasma physics?

I learned in graduate school that due to the equipartition of energy, the energy densities in the galaxy of magnetic fields, gravitational fields and kinetic energy are comparable in magnitude. The large energies associated with magnetic fields (plasmas) must have some effect in the structure of galaxies.

I can understand why computer simulations of galaxies ignore plasma effects, due to the difficulties of incorporating such effects in the

programs. But I cannot understand why theoretical discussions simply ignore plasmas.

The most pleasing theory of cosmology from an intellectual standpoint is the steady-state theory of Fred Hoyle. It is based upon the strong symmetry principle — namely, that there is symmetry in the large in the universe in space-time. There can be no fundamental difference in the universe here or anywhere else, or at any time. This theory lost favor due to difficulties with observations. However, recent observations and modern theoretical developments may yet rescue it.

There are other theories of physics that negate the Big Bang. The gravitational theory of Nathan Rosen, for example, denies the existence of black holes and the Big Bang.

The interesting question is: How do certain theories become so accepted that other theories of equal validity cannot even be heard? How many papers dealing with such other theories are rejected by referees? Is the Big Bang in favor due to religious feelings?

*Sanford Aranoff
Kiryat Motzkin, Israel*

JULY 28, 1990

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