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COVER: As engineers promote an evolution in the automobile and the fuels that will feed it, there is growing concern over whether we can keep the current breed of car—all 300 million of them—from starving. That's why gasoline stretchers and efforts to derive gasoline from unusual sources are gaining so much attention. See page 234.

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LETTERS

Popular open universe

It is interesting to read about cosmology, as always (SN: 3/22/80, p. 180), but your offhand comment that Canuto and Hsieh's data enable them to decide for an open universe, "which is rather the unpopular side of the question right now," is inaccurate. Most of the evidence now, and for the past few years, favors the open universe, so the open universe is the most popular choice as of the present time. The evidence includes not only the deuterium-to-hydrogen ratio, which several of us have been pursuing since 1972, but also the discovery from the Einstein Observatory that the X-ray background comes from faint quasars rather than from an intergalactic medium that could contain the missing mass. The results in favor of an open universe are now backed by Hale Observatories studies by Amos Yahil, Alan Sandage and Gustav Tammann. They studied relatively nearby galaxies, and concluded that the mass density of the universe is low and thus that the universe is open.

Jay M. Pasachoff
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Reducing acid rain

It has occurred to me, given the enormity of social cost/benefits at stake, that a workable strategy in reducing the effects of acid rain might be for the federal government to buy some portion of the emissions of sulfur dioxide and nitrogen oxides that are banked each year, once that system is operating routinely. This action would be in keeping with the goal of the emissions banking concept, to provide an economic incentive to industry to reduce emissions beyond the minimal requirements, while effectively reducing the emissions of these acid rain precursors. This policy would be somewhat analogous to the Department of Agriculture's policy of paying farmers to fallow their fields, and would represent a societal decision to expend funds to both improve environmental quality and prevent the billions of dollars of destruction wrought by the acid rain phenomenon.

Tom Zeller, IPA
Evansville, Ind.

Getting the issue straight

Your article on the commercialization of recombinant DNA technology (SN: 3/29/80, p. 202) refers to the pending Supreme Court case on the question of whether a living organism can be patented at all. It has been widely reported that such is an issue in the case and certain of the briefs submitted appear to treat the patentability of a living organism as an issue. Yet since 1930 over 4,500 plant patents have been issued on novel plant varieties which are capable of being asexually reproduced. A few of these patents cover fungi such as mushrooms, and at least one covers a microscopic fungus. An early decision precluded covering novel bacteria on the ground that Congress intended plants to mean plants as ordinarily understood rather than as biologically understood. The reasoning had nothing to do with whether or not living organisms could be patented. Since 1970, The Department of Agriculture has had authority to issue a Certificate, which is the equivalent of a patent, to anyone who develops or discovers a novel variety of sexually reproduced plant.

When Luther Burbank developed the Shasta daisy and other valuable new plant varieties, he was unable to obtain exclusive rights to the development. This fairly notorious situation was one of the factors which caused Congress to decide to grant to breeders and developers patent rights and exclusivity rights similar to those granted to inventors and developers in the other industrial arts.

Hopefully, the Supreme Court will not be derailed by what is essentially a false issue: the patentability of life. The more legitimate issue relating to the patentability of a new living organism produced through recombinant DNA technology concerns the intent of Congress. What did Congress mean in the patent statute when it defined patentable invention as "any new and useful process, machine, manufacture or composition of matter"? Did Congress contemplate including such new technology as computer programs and novel microorganisms under such a definition? Is a computer program a process? Is a bacterium a composition of matter? The legal issue is whether or not the courts should leave it to Congress to amend the statute to include new technology or interpret the statute to include all new technology and leave it to Congress to write a specific exception if it so desires.

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