

Searching for a 'Supercar'

"A Practical Road to Lightweight Cars" by Frank R. Field III and Joel P. Clark, in *Technology Review* (Jan. 1997), Bldg. W59, MIT, Cambridge, Mass. 02139.

With visions of an ultra-lightweight, highly fuel-efficient "supercar" dancing in their heads, U.S. automakers joined forces with the federal government in 1994 to launch an aggressive research and development project. Its goal: to produce within 10 years a prototype automobile that gets more than 80 miles per gallon, offers the performance and convenience of a conventional car—and is no more expensive.

This last is the rub, contend Field, director of the Materials Systems Laboratory at the Massachusetts Institute of Technology, and Clark, a professor of materials science and engineering at MIT.

Using reinforced plastics for auto bodies rather than steel would bring a supercar within reach but would require drastic changes in current manufacturing and design processes. And the resulting supercar might well not be competitive. Reinforced plastics are much more expensive and less stiff than aluminum or steel. And a "unibody" (the design used for steel autos) made of reinforced plastics is hard to manufacture, because the plastic parts must match exactly. Unlike steel or aluminum parts, they cannot be bent, twisted, or banged into

shape to make them fit together.

All of this adds to costs. The reinforced plastic unibody of Ultralite, an experimental car developed by General Motors with the sole aim of getting the highest possible gas mileage (and with no regard for comfort or safety), would cost \$6,400 (at a production volume of 100,000), compared with \$2,500 for a steel unibody.

An aluminum car, based on either a "unibody" design or a "space frame" one (essentially a large truss structure), does better on that score. In a production run of 300,000 (mass-market vehicles such as the popular Ford Taurus are produced in volumes of 300,000 to 500,000), an aluminum unibody would cost about \$2,000, and an aluminum space frame about \$2,400, as compared with \$1,400 for a steel unibody.

An "affordable" supercar is not in the offing, the authors conclude. Instead of "revolutionizing" its designs and technology, the auto industry should focus on gradual weight reductions, especially on the manufacture of cheaper aluminum bodies that function as well as steel ones. More progress will be made that way than by pursuing a "technological chimera."

'Decolonizing' Science

"The Science Wars in India" by Meera Nanda, in *Dissent* (Winter 1997), 521 Fifth Ave., Ste. 1700, New York, N.Y. 10017.

Unmasking harmful "cultural constructs" is all the rage in the academic world. Lately attention has turned to science, attacked by Andrew Ross, Sandra Harding, and others as a Western "cultural construct" whose claim to a universally valid rationality is no more than a flimsy cover for imperialism and racism. These professors seem to think they are doing the oppressed of the Third World a big favor, observes Nanda, a science writer, but they are unwittingly opening an intellectual door for religious fundamentalists.

In India, Hindu nationalists have responded to the call for the "decolonizing" of science by aggressively promoting "Hindu ways of knowing." Nanda writes that the Bharatiya Janata Party (BJP), which won 36 percent of the seats in the Indian parliament's lower house last

May, insists in its recent *Humanistic Approach to Economic Development* "that the cultural ethos of the Hindu *Rashtra* (nation) must . . . have the final authority over what aspects of 'foreign' science and technology are admitted into schools and other institutions." When the BJP came to power in the Indian state of Uttar Pradesh in 1992, one of its first acts was to make the study of "Vedic mathematics" compulsory for high school students. In government-approved textbooks, standard algebra and calculus were replaced with 16 Sanskrit verses that merely provide formulas for quick computation.

History textbooks in India have also been rewritten as a result of the growing influence of Hindu nationalists in the state and central governments, Nanda says. The books now "cele-