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**IF GENE DOPING** and a 500-year-old mystery manuscript weren't intriguing enough, July's issue included nothing less than God and taxes.

In "God's Number Is Up" [Skeptic], Michael Shermer used Bayesian probabilities to peg the likelihood of a supreme being at 2 percent, which led William Orem of Waltham, Mass., to write, "Until a theist presents some credible evidence for the existence of his or her particular god, atheism is the rational position of default. As long as gods stay in the magical realm, the question of their existence is not scientifically insoluble; it is a nonquestion." John Walsh of Arlington, Tex., registered his amazement that "Shermer finds the probability of the existence of God a mere mathematical puzzle, while the dogged search for dark matter and dark energy based on inference gains popularity." And although no one denies the existence of taxes, it is just as certain that everyone will have an opinion about them, as with genetic modification.



**TAX ATTACK**

Over the past couple of years, I've noticed that some of your articles have been crossing the line between objective science and subjective politics.

This month's By the Numbers column ("Undercutting Fairness") by Roger Doyle is an example. The unabashed bent that the author displays toward "progressive" taxation seems out of place in *Scientific American*.

Whereas the appropriateness, the practicality and the politics of progressive versus flat versus regressive taxation might promote a lively debate, using loaded words like "fairness" and starting the article from the foregone conclusion that a progressive tax is best leaves a bad taste in my mouth. Please keep politics out of my favorite magazine.

**Kevin Kretz**  
 Bernardsville, N.J.

Doyle describes the federal income tax as "efficient and mostly fair, thanks to its progressive rates." Is he kidding? First of all, what definition of "efficient" could one possibly use to describe a complex system of tax codes that costs taxpayers \$8 billion annually just to operate the Internal Revenue Service and pay its approximately 116,000 employees, along with another estimated \$225 billion for compliance?

Second, whether or not progressive rates are "fair" is clearly a matter of opin-

ion. Considering an individual's tax contribution only as a percentage of income distorts the simple reality that high earners contribute a lot in taxes and buy a lot of goods and services (which also, by the way, provides work for other people).

**Becky Brown**  
 Altamonte Springs, Fla.

You assumed progressive tax rates are "fair." Can you provide a basis for that assumption? We generally don't give discounts, based on income, for other services or admission fees. Isn't that fair?

Also, can you provide (by the numbers) some measure of "progressivity" versus other measures of "good outcomes," such as rates of college graduates, income, reading levels, SAT scores, water quality, divorce rates and so on by comparing states or other localities?

**Bob Smith**  
 Oak Ridge, Tenn.

**DESIGNER GENES**

Regarding "Gene Doping," by H. Lee Sweeney: it was disappointing to see this article emphasize the possible abuse by athletes of genetically enhanced muscles. Wouldn't it have been better to speak in terms of the benefits to all those who suffer from muscular dystrophy and aging muscles? You're seeing the glass half-empty instead of half-full.

**Susan Godzac**  
 Erie, Pa.

**Sweeney's article** on gene doping raised several questions for me. The first was entirely selfish: Can he develop a gene therapy to repair my torn knee cartilage and ligaments?

Other questions of more relevance to society followed. What effect will gene doping have on warfare and on law enforcement? It seems entirely predictable that nations will attempt to produce super soldiers, and those intending to break the law will try to use gene doping to gain an advantage over citizens and law enforcers. These activities will inevitably lead to "arms races" among the medical-scientific establishments of nations to produce ever more invincible soldiers. There is also reason to expect that a different sort of arms race will develop between criminal organizations (and the medical personnel they can hire or blackmail) and physicians working with the justice system.

What changes and adjustments will these developments require of society, law and individuals? It seems prudent to begin thinking about these matters now.

**Robert Henley**  
Diamond Springs, Calif.

When I read Sweeney's article, I was enthused about the possibilities of the muscle-growth gene therapy. If athletes want to abuse the potential, so what? The pos-

sible benefits far outweigh the fact that sports will be changed forever. I have to believe that even the most ardent sports fan would prefer that his grandparents enjoy a physically active life for their entire span instead of spending years as a prisoner in their weakened bodies.

**Nathan Bell**  
Leetonia, Ohio

## SPACE REFLECTIONS

**Regarding "The Shapes of Space,"** by Graham P. Collins: If the universe is a 3-sphere, shouldn't an astronomer looking into very deep space see the same distant galaxies as the ones that would be seen by looking in the exact opposite direction, that is, the deep sky looking exactly celestial north should be the same (mirror reversed) as that seen looking exactly celestial south? I have often wondered if this is so, and perhaps modern instruments are powerful enough that this can be checked. Has anyone done this? Maybe time has to be included in the real universe (making a 4-sphere), which makes it more complex—does anyone know?

**Robin A. Cox**  
Scarborough, Ontario

**COLLINS REPLIES:** Astronomers have indeed looked for such patterns, but none have been detected. Last May a group reported finding no evidence of such repetitions in the mi-

crowave background, implying that the universe extends for at least about 75 billion light-years before it can curve back on itself. In October 2003, however, another group reported evidence, based on a different analysis of the microwave background, that the universe could be like a dodecahedron of a diameter of about 90 billion light-years, with opposite faces identified (a space known as the Poincaré dodecahedral space).

These issues are also discussed in "Is Space Finite?" by Jean-Pierre Luminet, Glenn D. Starkman and Jeffrey R. Weeks; *SCIENTIFIC AMERICAN*, April 1999, updated in "The Once and Future Cosmos," *SCIENTIFIC AMERICAN Special Issue*, Vol. 12, No. 2; 2002.

## CEREBRATING VOYNICH

**I was delighted** by Gordon Rugg's approach in "The Mystery of the Voynich Manuscript." Rugg's attention to the history of the acceptance of certain views underlines the social and personal forces that have shaped the sciences.

We must pay attention to the politics and provenance of "fact," the process of "expert reasoning," as Rugg puts it. Increasingly, we must join the perspectives of available disciplines: biology, psychology, history, linguistics and many other fields. Only such cooperation can pry truth from process and allow us in some small way to escape our wiring.

Certainly "forms of sensibility," as Kant put it, affect our knowledge. Because we are in a better position than any other age to examine such forms and categories, we should do so in a more systematic way. I hope a reliance on such investigations will become a larger element in our scientific literature.

**John J. Ronan**  
Magnolia, Mass.

**ERRATA** In "Big Air," by Mark Fischetti [Working Knowledge], the location of the John Wanamaker Grand Court Organ in Philadelphia is Lord & Taylor, not Hecht's.

In "When Methane Made Climate," by James F. Kasting, the photograph of Methanosarcinales should be credited to Everly Conway de Macario and Alberto J. L. Macario.



**GENE THERAPY** could duplicate the effects of a natural mutation that blocks the antgrowth factor myostatin, resulting here in "double-muscled," exceptionally lean cattle.