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**NO:** **Susan E. Dudley**, from Hearing on “EPA’s New Ozone Standards,” Testimony before the House Committee on Oversight and Government Reform (May 20, 2008) 16

Francesca T. Grifo, director of the Union of Concerned Scientists’ Scientific Integrity Program, argues that the Bush administration established a pattern of interfering in federal scientific reports and science-based decision making, notably with the Environmental Protection Agency’s (EPA) setting of an air quality standard for ground-level ozone. Susan E. Dudley, administrator of the Office of Management and Budget’s (OMB) Office of Information and Regulatory Affairs, argues that regulations and guidance documents such as scientific reports must be consistent with the president’s priorities, among other things.

### Issue 2. Should “Intelligent Design” Be Taught in Public Schools? 23

**YES:** **J. Scott Turner**, from “Signs of Design,” *Christian Century* (June 12, 2007) 25

**NO:** **National Academy of Sciences and Institute of Medicine of the National Academies**, from *Science, Evolution, and Creationism* (National Academies Press, 2008) 31

Professor J. Scott Turner argues that the real issue is whether the world is purposeful. Intelligent design can in fact be usefully taught, and doing so avoids intrusions on academic freedom. The National Academy of Sciences and Institute of Medicine of the National Academies argue that evolution is so firmly ensconced in the foundations of modern science that nonscientific alternatives to evolution such as creationism (including intelligent design) have no place in the public school science curriculum.

### Issue 3. Should the Internet Be Neutral? 40

**YES:** **Lawrence Lessig**, from “The Future of the Internet,” Testimony before the Senate Committee on Commerce, Science and Transportation Hearing (April 22, 2008) 42

**NO:** Kyle McSlarrow, from “The Future of the Internet,” Testimony before the Senate Committee on Commerce, Science and Transportation Hearing (April 22, 2008) 49

Professor of law Lawrence Lessig argues that in order to protect the growth and economic vitality of the Internet, Congress should enact “network neutrality” legislation to prevent broadband providers from interfering with free competition among application and content providers. Kyle McSlarrow, president and chief executive officer of the National Cable & Telecommunications Association, argues that “net neutrality” mandates would interfere with the ability of broadband providers to improve Internet access and thus would ultimately undermine consumer choice and welfare.

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### Issue 4. Are “Space Sunshades” a Possible Answer to Global Warming? 60

**YES:** Roger Angel, from “Feasibility of Cooling the Earth with a Cloud of Small Spacecraft near the Inner Lagrange Point (L1),” *Proceedings of the National Academy of Sciences of the United States of America* (November 14, 2006) 62

**NO:** James R. Fleming, from “The Climate Engineers,” *Wilson Quarterly* (Spring 2007) 71

Professor of astronomy Roger Angel argues that if dangerous changes in global climate become inevitable, despite greenhouse gas controls, it may be possible to solve the problem by reducing the amount of solar energy that hits the Earth, using reflective spacecraft. James R. Fleming, professor of science, technology, and society, argues that climate engineers such as Roger Angel fail to consider both the risks of unintended consequences to human life and political relationships and the ethics of the human relationship to nature.

### Issue 5. Is It Time to Revive Nuclear Power? 83

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**NO:** Kristin Shrader-Frechette, from “Five Myths About Nuclear Energy,” *America* (June 23–30, 2008) 92

Iain Murray argues that the world’s experience with nuclear power has shown it to be both safe and reliable. Costs can be contained, and if one is concerned about global warming, the case for nuclear power is unassailable. Professor Kristin Shrader-Frechette argues that nuclear power is one of the most impractical and risky of energy sources. Renewable energy sources such as wind and solar are a sounder choice.

### Issue 6. Will Hydrogen Replace Fossil Fuels for Cars? 100

**YES:** David L. Bodde, from “Fueling the Future: The Road to the Hydrogen Economy,” Statement Presented to the Committee on Science, Subcommittee on Research and Subcommittee on Energy, U.S. House of Representatives (July 20, 2005) 102

**NO:** Robert Zubrin, from “The Hydrogen Hoax,” *The New Atlantis* (Winter 2007) 112

Professor David L. Bodde argues that there is no question whether hydrogen can satisfy the nation’s energy needs. The real issue is how to

handle the transition from the current energy system to the hydrogen system. Robert Zubrin argues that so far hydrogen-fueled vehicles are little better than display models and there are too many obstacles to replacing gasoline with hydrogen. What is needed is legislation to mandate that all new cars sold in the United States be “flex-fueled”—able to burn any mixture of gasoline and alcohol.

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### Issue 7. Do Falling Birth Rates Pose a Threat to Human Welfare? 126

**YES:** Michael Meyer, from “Birth Dearth,” *Newsweek* (Atlantic Edition) (September 27, 2004) 128

**NO:** Dave Foreman, from “The Human Population Explosion and the Future of Life,” *Uncle Dave Foreman’s Around the Campfire* (March 11, 2008) 134

Michael Meyer argues that when world population begins to decline after about 2050, economies will no longer continue to grow, government benefits will decline, young people will have to support an elderly population, and despite some environmental benefits, quality of life will suffer. Environmental activist Dave Foreman argues that although levels of consumption and technology play large parts in threatening both the natural world and human welfare, a far more significant factor is population numbers and population growth. It is crucial that the world stabilize population as soon as possible.

### Issue 8. Is There Sufficient Scientific Evidence to Conclude That Cell Phones Cause Cancer? 141

**YES:** George Carlo and Martin Schram, from *Cell Phones: Invisible Hazards in the Wireless Age: An Insider’s Alarming Discoveries About Cancer and Genetic Damage* (Carroll & Graf, 2001) 143

**NO:** United Kingdom’s National Radiation Protection Board, from *Mobile Phones and Health 2004: Report by the Board of NRPB* (Doc NRPB 15(5), 2004) 151

Public health scientist George Carlo and journalist Martin Schram argue that there is a definitive risk that the electromagnetic radiation generated by cell phone antennae can cause cancer and other health problems. The National Radiation Protection Board (now the Radiation Protection Division, <http://www.hpa.org.uk/radiation/>, of the United Kingdom’s Health Protection Agency) argues that there is no clear indication of adverse health effects, including cancer, from the use of mobile phones, but precautions are nevertheless in order.

### Issue 9. Should DDT Be Banned Worldwide? 162

**YES:** Anne Platt McGinn, from “Malaria, Mosquitoes, and DDT,” *World Watch* (May/June 2002) 164

**NO:** Donald R. Roberts, from “The Role of Science in Environmental Policy-Making,” Statement before U.S. Senate Committee on Environment & Public Works, (September 28, 2005) 172

Anne Platt McGinn, a senior researcher at the Worldwatch Institute, argues that although DDT is still used to fight malaria, there are other, more effective and less environmentally harmful methods. She maintains that DDT should be banned or reserved for emergency use. Donald R. Roberts argues that the scientific evidence regarding the environmental hazards of DDT has been seriously misrepresented by anti-pesticide activists. The hazards of malaria are much greater and, properly used, DDT can prevent them and save lives.

### **Issue 10. Should Potential Risks Slow the Development of Nanotechnology? 183**

**YES:** John Balbus, Richard Denison, Karen Florini, and Scott Walsh, from "Getting Nanotechnology Right the First Time," *Issues in Science and Technology* (Summer 2005) 185

**NO:** Mike Treder, from "Molecular Nanotech: Benefits and Risks," *The Futurist* (January–February 2004) 194

John Balbus, Richard Denison, Karen Florini, and Scott Walsh of Environmental Defense in Washington, D.C., argue that much more needs to be done to assess risks to health and the environment before nanotechnology-based products are put on the market. Mike Treder, executive director of the Center for Responsible Nanotechnology, argues that the task at hand is to realize the benefits of nanotechnology while averting the dangers but that attempts to control all risks may lead to abusive restrictions and wind up exacerbating the hazards.

### **Issue 11. Are Genetically Modified Foods Safe to Eat? 203**

**YES:** Henry I. Miller and Gregory Conko, from "Scary Food," *Policy Review* (June/July 2006) 205

**NO:** Jeffrey M. Smith, from "Not in My Fridge!" *Ecologist* (November 2007) 213

Henry I. Miller and Gregory Conko of the Hoover Institution argue that genetically modified (GM) crops are safer for the consumer and better for the environment than non-GM crops. Jeffrey M. Smith, director of the Institute for Responsible Technology and the Campaign for Healthier Eating in America, argues that GM foods are dangerous to health and should be removed from the marketplace.

## **UNIT 4 SPACE 225**

### **Issue 12. Is NASA Doing Enough to Protect the Earth from Asteroid and Comet Impacts? 226**

**YES:** J. Anthony Tyson, from "Near-Earth Objects (NEOs)—Status of the Survey Program and Review of NASA's Report to Congress," Testimony before the House Committee on Science and Technology, Subcommittee on Space and Aeronautics (November 8, 2007) 228

**NO:** Russell L. Schweickart, from "Near-Earth Objects (NEOs)—Status of the Survey Program and Review of NASA's Report to Congress," Testimony before the House Committee on Science and Technology, Subcommittee on Space and Aeronautics (November 8, 2007) 234

Physics professor J. Anthony Tyson argues that NASA can fulfill its congressionally mandated mission of surveying near-Earth objects (NEOs) that may pose future hazards to Earth by funding the proposed Large Synoptic Survey Telescope (LSST) project. Russell L. Schweickart, chairman of the B612 Foundation, argues that NASA should do much more than just survey and catalog NEOs. Not only should it mount a more aggressive survey effort, but it should also accept the job of protecting the Earth from NEO impacts as a public safety responsibility.

### **Issue 13. Will the Search for Extraterrestrial Life Ever Succeed? 245**

**YES:** **Seth Shostak**, from “When Will We Detect the Extraterrestrials?” *Acta Astronautica* (August 2004) 247

**NO:** **Peter Schenkel**, from “SETI Requires a Skeptical Reappraisal,” *Skeptical Inquirer* (May/June 2006) 254

Radio astronomer and SETI researcher Seth Shostak argues that if the assumptions behind the SETI search are well grounded, signals of extraterrestrial origin will be detected soon, perhaps within the next generation. Peter Schenkel argues the SETI’s lack of success to date, coupled with the apparent uniqueness of Earth, suggest that intelligent life is probably rare in our galaxy and that the enthusiastic optimism of SETI proponents should be reined in.

### **Issue 14. Is “Manned Space Travel” a Delusion? 263**

**YES:** **Neil deGrasse Tyson**, from “Delusions of Space Enthusiasts,” *Natural History* (November 2006) 265

**NO:** **George W. Bush**, from “President Bush Announces New Vision for Space Exploration Program,” Office of the Press Secretary (January 14, 2004) 271

Astronomer Neil deGrasse Tyson argues that large, expensive projects such as space exploration are driven only by war, greed, and the celebration of power. The dream of colonizing space became a delusion as soon as we beat the Russians to the moon, and it remains so. President George W. Bush argues for his vision of renewed and expanded manned space travel because it improves our lives and lifts the national spirit.

## **UNIT 5 THE COMPUTER REVOLUTION 279**

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**YES:** **Christof Koch and Giulio Tononi**, from “Can Machines Be Conscious?” *IEEE Spectrum* (June 2008) 282

**NO:** **John Horgan**, from “The Consciousness Conundrum,” *IEEE Spectrum* (June 2008) 290

Christof Koch and Giulio Tononi argue that because consciousness is a natural phenomenon, it will eventually be artificially created. To test for such consciousness, however, will require something other than the classic Turing test. John Horgan argues that no one has the foggiest idea of what consciousness really is, and it seems highly unlikely that we will ever be able to create an artificial consciousness. “Engineers and scientists should be helping us face the world’s problems and find

solutions to them, rather than indulging in escapist, pseudoscientific fantasies like the singularity.”

### Issue 16. Is Information Technology a Threat to Privacy? 300

**YES:** Amitai Etzioni, from “Are New Technologies the Enemy of Privacy?” *Knowledge Technology & Policy* (Summer 2007) 302

**NO:** Stuart Taylor, Jr., from “How Civil-Libertarian Hysteria May Endanger Us All,” *National Journal* (February 22, 2003) 308

Amitai Etzioni argues that privacy is under attack by new technologies. There is a need for oversight and accountability, but the mechanisms of accountability must not lie solely in the hands of government. Stuart Taylor, Jr., contends that those who object to surveillance—particularly the government surveillance—have their priorities wrong. Curbing “government powers in the name of civil liberties [extracts] too high a price in terms of endangered lives.”

### Issue 17. Should the World’s Libraries Be Digitized? 313

**YES:** Brendan Rapple, from “Google and Access to the World’s Intellectual Heritage,” *Contemporary Review* (June 2005) 315

**NO:** Keith Kupferschmid, from “Are Authors and Publishers Getting Scroogled?” *Information Today* (December 2005) 321

Brendan Rapple argues that as Google scans, indexes, and makes available for online searching the books of the world’s major libraries, it will increase access, facilitate scholarship, and in general benefit human civilization. Keith Kupferschmid argues that there is no justification in law for Google’s massive copying of books. If the Google Print Library Project is allowed to continue, the interests of publishers, authors, and creators of all kinds will be seriously damaged.

## UNIT 6 ETHICS 333

### Issue 18. Is “Animal Rights” Just Another Excuse for Terrorism? 334

**YES:** John J. Miller, from “In the Name of the Animals: America Faces a New Kind of Terrorism,” *National Review* (July 3, 2006) 336

**NO:** Steven Best, from “Dispatches from a Police State: Animal Rights in the Crosshairs of State Repression,” *International Journal of Inclusive Democracy* (January 2007) 341

Journalist John J. Miller argues that animal rights extremists have adopted terrorist tactics in their effort to stop the use of animals in scientific research. Because of the benefits of such research, if the terrorists win, everyone loses. Professor Steven Best argues that new laws against animal rights “terrorism” represent the efforts of animal exploitation industries that seek immunity from criticism. The new Animal Enterprise Protection Act is excessively broad and vague, imposes disproportionate penalties, endangers free speech, and detracts from prosecution of real terrorism. The animal liberation movement, on the other hand, is both a necessary effort to emancipate animals from human exploitation, and part of a larger resistance movement opposed to exploitation and hierarchies of any and all kinds.

**Issue 19. Is It Ethically Permissible to Clone Human Cells? 353**

**YES:** **Julian Savulescu**, from "Should We Clone Human Beings? Cloning as a Source of Tissue for Transplantation," *Journal of Medical Ethics* (April 1999) 355

**NO:** **David van Gend**, from "Prometheus, Pandora, and the Myths of Cloning," *Human Life Review* (Summer/Fall 2006) 367

Julian Savulescu, director of the Ethics Program of the Murdoch Institute at the Royal Children's Hospital in Melbourne, Australia, argues that it is not only permissible but morally required to use human cloning to create embryos as a source of tissue for transplantation. Physician David van Gend argues that not only is the cloning of embryonic stem cells morally indefensible, but recent progress with adult stem cells makes it unnecessary as well.

**Issue 20. Should the Public Have to Pay to See the Results of Federally Funded Research? 376**

**YES:** **Ralph Oman**, from Hearing on "The Fair Copyright in Research Works Act," Testimony regarding H.R.6845 before the Subcommittee on Courts, the Internet, and Intellectual Property of the Committee on the Judiciary (September 11, 2008) 378

**NO:** **Heather D. Joseph**, from Hearing on "The Fair Copyright in Research Works Act," Testimony regarding H.R.6845 before the Subcommittee on Courts, the Internet, and Intellectual Property of the Committee on the Judiciary (September 11, 2008) 383

Ralph Oman, attorney and past register of copyrights, contends, "If the NIH [National Institutes of Health] succeeds in putting all of the NIH-related peer-reviewed articles on its online database for free within one year of publication, the private publishers will be hard-pressed to survive." Allowing private publishers to continue to profit by publishing the results of publicly funded research is the best way to ensure public benefit. Heather D. Joseph argues that permitting public access to the NIH-funded research results does not threaten the viability of journal publishers. In addition, immediate online access to research results is invaluable to the public.

**Issue 21. Should We Reject the "Transhumanist" Goal of the Genetically, Electronically, and Mechanically Enhanced Human Being? 389**

**YES:** **M. J. McNamee and S. D. Edwards**, from "Transhumanism, Medical Technology and Slippery Slopes," *Journal of Medical Ethics* (September 2006) 391

**NO:** **Maxwell J. Mehlman**, from "Biomedical Enhancements: Entering a New Era," *Issues in Science and Technology* (Spring 2009) 403

M. J. McNamee and S. D. Edwards argue that the difficulty of showing that the human body *should* (rather than *can*) be enhanced in ways espoused by the transhumanists amounts to an objection to transhumanism. Maxwell J. Mehlman argues that the era of routine biomedical enhancements is coming. Since the technology cannot be banned, it must be regulated and even subsidized to ensure that it does not create an unfair society.