

SCIENCE, TECHNOLOGY, AND THE CONSTITUTION

The centrality of science and technology to American society argues that Congress and the courts will repeatedly be asked to reexamine constitutional principles in the context of new scientific knowledge and new technical capabilities. This paper seeks to stimulate continuing public discussion of the relationships between science, technology, and basic constitutional provisions.

The United States Constitution is entering its third century as our Nation's basic political and legal framework. It has guided our development as a democratic, free society for 200 years during which both the economy and science have flourished. It has not only proven resilient to dramatic changes accompanying the industrial revolution and the development of modern telecommunications and transportation systems; it has also created a structure in which the scientific and technological ingenuity of the American people continues to flourish.

The pace of scientific and technological progress is relentless, offering us powers not dreamed of in 1787. Day by day, scientific research reveals more of the universe beyond the earth, the universe within the atom, and that further universe of possibilities within the human gene and the human brain. Technology gives us the tools to explore these frontiers, allowing us to modify not just our environment, as man has always done, but the human body, behavior, brain and the whole of our genetic heritage on a scale that is unprecedented. We can manipulate chemical factors in human behavior, measure human abilities, and predict human performance with increasing power and precision. With chemical and biological tests, we can both detect past behaviors and assess future risks to specific people from disease, pollutants, or their own genetic inheritance.

The social sciences also are improving our ability to monitor, predict, and modify human

behavior and attitudes. We use the techniques of statistical analysis, modeling, simulation, and expert systems to decide who goes to prison and who is released, who exercises parental rights, who gets into college or a prestigious profession, and who gets a new heart.

We can intervene at the boundaries of life and death. Indeed, because of medical technology we have been forced to reconsider the definition of both. Advances in these technologies are insistently raising questions about the right to die; the sometimes conflicting rights of mothers and unborn children; and the right to impose the consequences of those decisions on parents, families, friends, and society at large.

Power, scale, precision, invasiveness, pervasiveness, persistence, and imperfection—these are inescapable characteristics of late 20th century technology. Nearly all facets of our life, including our work, play, homes, and health, are strongly affected by technology. Our economic strength and our national security depend on our continuing to be among the leaders in science and technology.

How will these world-shaking advances in human knowledge and capability change the context in which the Constitution's enduring principles of democratic governance and individual liberty operate? Can we look to the world of 2087 with confidence that the Constitution will meet the challenges of its third century and will continue to be a strong bulwark against abuse of both political and technological power? These are the questions examined in a series of OTA reports on science, technology, and the Constitution. These reports begin with the observation that we are moving into an era in which information, in all of its varied forms, has become the agent of vast social and scientific change.