
RELIGION & PHILOSOPHY

malleable as man and, hence, limitless." For this reason, children's rights activists can present the items on their public policy "wish list"—the elimination of war or the end of poverty—as if they were "rights" of children.

Broader children's rights are sometimes urged as a remedy for child abuse. But Blits calls this "a wholesale solution to a retail problem." Greene and her allies speak in benign terms about children and the family, yet they seem to assume that the family is actually a "combat zone." Ironically, Blits writes, the legal safeguards that children's rights advocates propose, by stripping parents of their authority and encouraging lawsuits by their offspring, might make families just that.

SCIENCE & TECHNOLOGY

Abstinence Is Not the Answer

"The New Prohibitionists" by Stanton Peele, in *The Sciences* (Mar.-Apr. 1984), P.O. Box 356, Martinsville, N.J. 08836.

"I am an alcoholic," Alcoholics Anonymous members ritually declare, "I cannot drink." That is the common view in the United States: Alcoholism is a disease, and abstinence is the only cure.

But Peele, a psychologist, argues that we should not view problem drinkers in this light. It may hurt their chances for recovery. He believes that alcoholism may be more a social and psychological problem than a medical one.

Drinking was a family affair in colonial America, and children were taught early to exercise moderation. Drinking problems were rare. (They still are among certain ethnic groups: Only one in 100 American Jews is an alcoholic, compared to about one in 12 of all Americans.) In the Wild West of the 19th century, however, taverns became male preserves, and heavy drinking became a sign of masculinity. Alcoholism rates soared, and, in reaction, the temperance movement was born. The "disease" theory of alcoholism—and the view that abstinence is the only cure—was a natural outgrowth of the notion that alcohol is evil and corrupting.

But if alcoholism is a "disease," Peele says, nobody has yet discovered the metabolic mechanism behind it. And since the "disease" is not contagious, it must be "mandated by genes." But alcoholism, unlike most genetic afflictions, can be cured.

In Western Europe, where the disease theory lacks unanimous support, controlled-drinking therapy is an acceptable alternative to total abstinence. Only in the United States do advocates of controlled drinking encounter stiff resistance from health-care professionals and the news media. During the early 1970s, California psychologists Linda and Mark Sobell claimed success in teaching moderate drinking habits to 20 alcoholics. In 1982, *Science* magazine published a critique show-

SCIENCE & TECHNOLOGY

ing that all of the Sobells' "reformed" drinkers later suffered bouts of drunkenness and that four eventually died of alcohol-related causes. Neither *Science* nor CBS News's *60 Minutes*, which publicized the story, mentioned that the Sobells' 20-person "control" group went the abstinence route and also suffered four deaths.

Other U.S. research suggests that controlled drinking is feasible. A 1980 Rand Corporation study of one alcoholism treatment program shows that after four years, 18 percent of the patients still free of drinking problems had become moderate drinkers. Indeed, the Rand researchers found that some alcoholics—notably, single men under 40—were *more likely* to suffer relapses if they tried to swear off the bottle altogether rather than learn moderate drinking habits.

Abstinence may be the best policy for some, Peel says. "But when we promote the belief that [10–15 million people] cannot taste alcohol without catastrophic results, we may be fulfilling our own prophecy."

The Chemistry of Man's First Flight

"The Invention of the Balloon and the Birth of Modern Chemistry" by Arthur F. Scott, in *Scientific American* (Jan. 1984), P.O. Box 5969, New York, N.Y. 10017.

On November 21, 1783, the first men ever to fly without tethers to the ground went aloft in a hot-air balloon over Paris. The feat was the work of two paper manufacturers, Joseph-Michel and Jacques-Étienne Montgolfier, who were encouraged by—and woefully misinformed about—recent breakthroughs in chemistry.

The two revolutionary developments of the day were the overthrow of the phlogiston theory of chemical composition and the discovery of gases. The phlogiston theory, an extension of Aristotle's notion that all matter was composed of four elements (air, earth, fire, and water), explained that when substances burned, fire liberated a fifth element called phlogiston (from the Greek word for "flammable"). Gases, explains Scott, a former Reed College chemist, were regarded as a form of ordinary air.

The first major dent in the theory was made during the 1750s by British chemist Joseph Black (1728–99) who demonstrated that solid magnesia treated with acid released a gas distinct from air. He called it "fixed air," believing it had been trapped inside the magnesia. Black also found that "fixed air" (carbon dioxide) was released by burning charcoal and in fermentation and respiration. In 1766, his countryman Henry Cavendish (1731–1810) announced the discovery of a second gas, lighter than air, which he called "inflammable air" (hydrogen). Air could no longer be considered a basic element.

Aristotle's theory quickly collapsed. Joseph Priestley (1733–1804) soon isolated several gases, including oxygen, which he, still a believer in phlogiston, named "dephlogisticated air." (Priestley also injected "fixed air" into water, and "soda water" quickly became a European sensation.) The final step was taken by Antoine Lavoisier (1743–94),