

*DDT to the Rescue*

“What the World Needs Now is DDT” by Tina Rosenberg, in *The New York Times Magazine* (April 11, 2004), 229 W. 43rd St., New York, N.Y. 10036.

Ever since Rachel Carson’s *Silent Spring* (1962) sparked the environmental movement, DDT has been seen as one of the world’s most terrible toxins. Surely, America, which banned the notorious insecticide in 1972, shouldn’t now encourage its use in poor nations such as Uganda and Kenya? Indeed it should, argues Rosenberg, a *New York Times* editorial writer and author of several books on the developing world.

DDT is the single best weapon against malaria, which is one of the world’s deadliest diseases. In Africa, malaria is the leading killer after AIDS, taking the lives of one in 20 children. Because it’s been eradicated in richer countries, the mosquito-borne disease has become virtually invisible to them. But it kills two million people worldwide every year. An additional 300 to 500 million are afflicted. “During the rainy season in some parts of Africa,” writes Rosenberg, “entire villages of people lie in bed, shivering with fever, too weak to stand or eat. Many spend a good part of the year incapacitated, which cripples African economies.”

When *Silent Spring* alerted Americans to the devastation DDT could wreak on bird and fish populations as it traveled up the food chain, it was being sprayed in huge quantities on crops, mostly cotton. But fighting malarial mosquitoes requires spraying

very small quantities every few months on the interior walls of houses. (The mosquitoes tend to bite at night, when people are mostly indoors.) Such limited use is “unlikely to have major negative environmental impact,” according to the U.S. Agency for International Development (AID). “Most environmental groups don’t object to DDT where it is used appropriately and is necessary to fight malaria,” reports Rosenberg. Yet because of DDT’s hypertoxic image, AID and other major donors have not financed its use anywhere except in one country, Eritrea. It’s therefore “essentially unavailable” to poorer countries.

Something more than fear motivates the aid-givers. The fashion in development assistance today is to bypass the government and work through the private sector at the local level, and house spraying tends to be government sponsored. Donors such as the World Health Organization favor the distribution of insecticide-treated bed nets—a “useful” but much less effective tool, says Rosenberg, and one whose modest cost is still too high for rural Africans. Yet she has no doubt about the root problem: “DDT killed bald eagles because of its persistence in the environment. *Silent Spring* is now killing African children because of its persistence in the public mind.”

*Is Dr. Freud In, Again?*

“Freud Returns” by Mark Solms, and “Freud Returns? Like a Bad Dream” by J. Allan Hobson, in *Scientific American* (May 2004), 415 Madison Ave., New York, N.Y. 10017-1111.

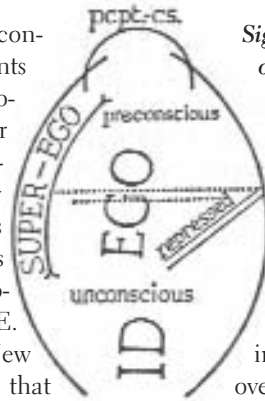
Once so influential, Sigmund Freud and his metaphorical ideas about the unconscious and repression were history by the 1980s in the eyes of most neuroscientists. But their biological and chemical approaches to the human mind have failed to provide a “big picture,” and now “Freud is back,” reports Solms, a neuropsychologist who is director of the New York Psychoanalytic Institute’s Pfeffer Center for Neuro-Psychoanalysis.

Setting aside past antagonisms, neuroscientists and psychoanalysts are now working together in most of the world’s major cities. Neuroscientists are proving some of Freud’s theories true and gaining glimpses of “the mechanisms behind the mental processes he described,” according to Solms.

In line with Freud’s central idea of the unconscious, research confirms that “a good deal of our mental activity is unconsciously

motivated.” Some patients can’t consciously remember particular events that occurred after certain memory-encoding structures of their brains were damaged, yet their behavior is clearly influenced by those events. “Neuroscientists have also identified unconscious memory systems that mediate emotional learning.” In 1996, Joseph E. LeDoux, a neuroscientist at New York University, demonstrated that under the conscious cortex exists “a neuronal pathway” that lets current events trigger unconscious memories of emotionally potent past events, causing seemingly irrational conscious responses, such as “Men with beards make me uneasy.” Freud’s claim that humans actively repress unwelcome information also has been gaining support from case studies.

Of course, some things Freud said are not panning out. “Modern neuroscientists do not accept Freud’s classification of human instinctual life as a simple dichotomy between sexuality and aggression,” Solms notes. “Instead, through studies of lesions and the ef-



*Sigmund Freud drew his final model of the mind (left) in 1933, but some researchers believe that the brain’s physical structures correspond to many of the psychologist’s divisions.*

fects of drugs and artificial stimulation on the brain, they have identified at least four basic mammalian instinctual circuits, some of which overlap.” The “seeking” circuit, which motivates the pursuit of pleasure and is regulated by the neurotransmitter dopamine, “bears a remarkable resemblance to the Freudian ‘libido.’” It might also be “the primary generator of dreams”—a possibility currently under investigation.

However, Hobson, a professor of psychiatry at Harvard Medical School, says that Freud’s defenders are doing a little dreaming themselves. Scientific investigations show that “major aspects of Freud’s thinking” were probably wrong. “Psychoanalysis is in big trouble and no amount of neurobiological tinkering can fix it.”

## *Future Fish*

“The Bluewater Revolution” by Charles C. Mann, in *Wired* (May 2004), 520 Third St., 3rd fl., San Francisco, Calif. 94107–1815.

The world’s appetite for fish is growing so fast that the catch will have to increase nearly 50 percent by 2020 to meet rising demand. Yet almost 30 percent of the world’s fish stocks are “overfished” or nearing extinction. The futuristic solution: robotic fish-farming in the open seas.

“Already, a third of the annual global fish harvest comes from farms, both on land and in shallow water just offshore,” writes Mann, a *Wired* contributing writer. “But today’s methods won’t be able to produce the volume of fish needed for tomorrow—they’re too dirty, costly, and politically unpopular” (because the farms spoil waterfront views).

Nine miles off the New Hampshire coast is a fish farm on the open ocean, an experiment run by the University of New Hampshire. A metal cylinder crammed with electronics and extending 10 feet above the surface of the

Atlantic is “the antenna, eyes, and brain of a sprawling apparatus suspended [below] like a huge aquatic insect, its legs of thick steel chain tethered to the ocean floor. The creature’s body is a group of three cages,” inside of which swim multitudes of halibut, haddock, and cod.

Similar experiments are underway in other countries. “In the future, ocean ranches will be everywhere, except they’ll be vastly bigger and fully automated—and mobile,” Mann predicts. “Launched with lab-bred baby fish, these enormous motorized pens will hitch months-long rides on ocean currents and arrive at their destinations filled with mature animals, fattened and ready for market.”

It’s not all clear sailing ahead. Obstacles include a “paltry” federal research budget (\$780,000 this year), legal questions about such ocean-roaming objects, and environmentalists worried about the risk of genetic