

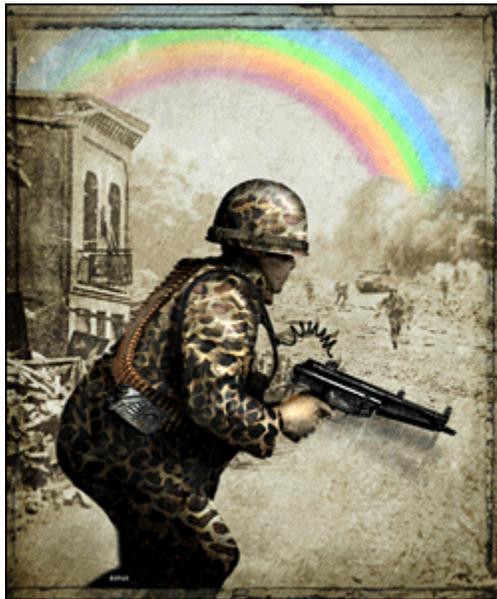
features

New Science Raises the Specter of a World Without Regret

The Guilt-Free Soldier

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January 22 - 28, 2003



(illustration: Richard Borge)

A soldier faces a drab cluster of buildings off a broken highway, where the enemy is encamped among civilians. Local farmers and their families are routinely forced to fill the basements and shacks, acting as human shields for weapons that threaten the lives of other civilians, the soldier's comrades, and his cause in this messy 21st-century war.

There will be no surgical strikes tonight. The artillery this soldier can unleash with a single command to his mobile computer will bring flames and screaming, deafening blasts and unforgettably acrid air. The ground around him will be littered with the broken bodies of women and children, and he'll have to walk right through. Every value he learned as a boy tells him to back down, to return to base and find another way of routing the enemy. Or, he reasons, he could complete the task and rush back to start popping pills that can, over the course of two weeks, immunize him against a lifetime of crushing

remorse. He draws one last clean breath and fires.

Pills like those won't be available to the troops heading off for possible war with Iraq, but the prospect of a soul absolved by meds remains very real. Feelings of guilt and regret travel neural pathways in a manner that mimics the tracings of ingrained fear, so a prophylactic against one could guard against the other. Several current lines of research, some federally funded, show strong promise for this.

At the University of California at Irvine, experiments in rats indicate that the brain's hormonal reactions to fear can be inhibited, softening the formation of memories and the emotions they evoke. At New York University, researchers are mastering the means of short-circuiting the very wiring of primal fear. At Columbia University one Nobel laureate's lab has discovered the gene behind a fear-inhibiting protein, uncovering a vision of "fight or flight" at the molecular level. In Puerto Rico, at the Ponce School of Medicine, scientists are discovering ways to help the brain unlearn fear and inhibitions by stimulating it with magnets. And at Harvard University, survivors of car accidents are already swallowing propranolol pills, in the first human trials of that common cardiac drug as a means to nip the effects of trauma in the bud.

The web of your worst nightmares, your hauntings and panics and shame, radiates from a dense knot of neurons called the amygdala. With each new frightening or humiliating experience, or even the reliving of an old one, this fear center triggers a release of hormones that sear horrifying impressions into your brain. That which is unbearable becomes unforgettable too. Unless, it seems, you act quickly enough to block traumatic memories from taking a stranglehold.

Some observers say that in the name of human decency there are some things people should have to live with. They object to the idea of medicating away one's conscience.

"It's the morning-after pill for just about anything that produces regret, remorse, pain, or guilt," says Dr. Leon Kass, chairman of the President's Council on Bioethics, who emphasizes that he's speaking as an individual and not on behalf of the council. Barry Romo, a national coordinator for Vietnam Veterans Against the War, is even more blunt. "That's the devil pill," he says. "That's the monster pill, the anti-morality pill. That's the pill that can make men and women do anything and think they can get away with it. Even if it doesn't work, what's scary is that a young soldier could believe it will."

Are we ready for the infamous Nuremberg plea? "I was just following orders" to be made easier with pharmaceuticals? Though the research so far has been limited to animals and the most preliminary of human trials, the question is worth debating now.

"If you have the pill, it certainly increases the temptation for the soldier to lower the standard for taking lethal action, if he thinks he'll be numbed to the personal risk of consequences. We don't want soldiers saying willy-nilly, 'Screw it. I can take my pill and even if doing this is not really warranted, I'll be OK'" says psychiatrist Edmund G. Howe, director of the Program on Medical Ethics at the Uniformed Services University of the Health Sciences. "If soldiers are going to have that lower threshold, we might have to build in even stronger safeguards than we have right now against, say, blowing away human shields. We'll need a higher standard of proof [that an action is justified]."

The scientists behind this advance into the shadows of memory and fear don't dream of creating morally anesthetized grunts. They're trying to fend off post-traumatic stress disorder, or PTSD, so that women who've been raped can leave their houses without feeling like targets. So that survivors of terrorist attacks can function, raise families, and move forward. And yes, so that those young soldiers aren't left shattered for decades by what they've seen and done in service.

Combat and psychoactive chemicals have always been inseparable, whether the agent was alcohol or a space-age pill. A half-century after Japan hopped its soldiers up on methylamphetamines during World War II, the U.S. has pilots currently in the dock for mistakenly bombing Canadian troops while using speed to stay awake. When Eric Kandel, the Nobel laureate in medicine who works out of Columbia, was asked if his genetic exploration of fear was funded by the Pentagon's Defense Advanced Research Projects Agency, he quipped, "No, but you're welcome to call them and tell them about me."

Imagine a world where the same pill soothed victims and perpetrators alike. Henry David Thoreau advised, "Make the most of your regrets; never smother your sorrow. . . . To regret deeply is to live afresh." Without remorse, there would have been no John Newton, a slave

trader who found religion during a harrowing storm at sea and later became an abolitionist; he's best known for penning "Amazing Grace."

For doctors, the drugs would present a tricky dilemma. Most people exposed to traumatic situations don't end up with PTSD, but there are few means of knowing on the spot who might need treatment much further down the line. Researchers say that for the medicines to be effective, patients would need to take them soon after the upsetting event. The temptation for physicians might be to err on the side of caution, at the cost of curbing normal emotional responses. Victims might be eager to avoid lasting pain, wrongdoers the full sting of self-examination.

"The impulse is to help people to not fall apart. You don't want to condemn that," says Kass. "But that you would treat these things with equanimity, the horrible things of the world, so that they don't disturb you . . . you'd cease to be a human being."

The very idea of PTSD has been attacked as a social construction, a vague catchall that provides exculpation for the misdeeds of war. But researchers are trying to prevent the onset of a disease, not change the social circumstances that bring it about. James L. McGaugh, a neurobiologist at U.C. Irvine whose study of stress hormones and memory consolidation in rats is one of the cornerstones of the effort, acknowledges the ambiguities but comes out swinging in defense of his work. "Is it immoral to weaken the memory of horrendous acts a person has committed? Well, I suppose one might make that case. Some of your strongest memories are of embarrassments and of the guilty things you did. It doesn't surprise me at all that people would wake up screaming, thinking of the young children they killed in Vietnam," McGaugh says. "But is treating that worse than saying, 'Don't worry if your leg is shot off, we've got penicillin and surgery to prevent you from dying of infection'? Why is it any worse to give them a drug that prevents them from having PTSD for the rest of their lives? The moral dilemma is sending people to war in the first place."

Nevertheless, fellow fear researcher Dr. Gregory Quirk of the Ponce School of Medicine, in Puerto Rico, is troubled by how his work might be used if it progressed from studies of rats to therapies for humans. He argues that fear isn't created and degraded in the amygdala alone, but is also unlearned in the prefrontal cortex, which in PTSD patients is only weakly active. Quirk thinks a physician could stimulate those areas with magnets while patients view the images they fear, and could thus restore balance to the mind. With that same method, he says, firemen could stave off episodes of life-threatening panic. "Certainly the military might be interested in something like that," he says. "If this would be used to go against fear that's important for survival or morality, I would have a problem with that."

There are reasons to believe our military would covet mastery of Quirk's technique in humans. People at war dehumanize their enemies to make killing more palatable. Now, in the war on terror, our modern cultural taboos against torture are fraying. Put yourself in the room then. The commission of heinous acts, even deliberate torture, can also visit lifelong torment on perpetrators who aren't hardwired very well to be sadistic. The sounds of screaming a primordial alert that mortal danger is near trigger those damning hormones even in the torturer.

And couple Quirk's magnetic manipulation of the brain with this: "One of the horrible things I discovered after the Gulf War was that, because of the coeducation of wars, as it were, male soldiers were given extensive desensitization training to make them able to hear

women being raped and tortured in the next room without breaking," Kass says. "It's a deformation of the soul of the first order. I cannot speak about it without outrage."

But a trauma-born irrational aversion to necessary war, pacifism in the face of an expanding evil isn't healthy either. "Such emotions can blind us as well as make us wiser," says Howe. "It's possible that these kinds of drugs would help patients see in a clearer way." On the flip side, could anyone possibly maintain that Ahab was a better captain for not having been chemically mollified after the white whale bit off his leg?

An uncomfortable reality is that war isn't an aberration; it has a very codified place in our culture. We agree through treaties to normalize it. We demand punishment for soldiers who violate those treaties, though more often those from the losing side. But we don't deny them medical treatment. And one needn't have committed a war crime to feel wracked by sorrow. "In my dreams I meet six Vietnamese people I murdered. Whether they had a gun on them is irrelevant," says Romo, who, as a 19-year-old lieutenant, served as a platoon leader in the 196th Light Infantry Brigade in 1967 and 1968. His ticket home was as a body escort for his similarly aged nephew, who served in the same unit. "I returned to the United States on my nephew's dead body," he says.

Romo and veterans like him have taken it upon themselves to use their experiences to teach peace. But veterans torn apart by PTSD don't have a choice about being Exhibit A in the case against war. "When you see what can happen to a young person, it passes on in a very real way, not in a history-class sense, that reality of what war and blood really is," he says. Who are we to impose this emotional albatross on soldiers? As a nation, we elect our leaders. It seems unjust to make veterans a special class to suffer for our sins in wrongheaded wars, or pay a continuing price for victory in the "good" ones.

"That's a heavy burden to put on people to preserve the morality you're talking about," says Dr. Roger K. Pitman of Harvard University, who's leading the propranolol study in people fresh from car accidents. "By that same logic, if you could make a lightweight bulletproof garment for soldiers we still shouldn't do it. For moral reasons we ought to make them able to be shot, to preserve the cost of war, the deterrent to war. But we work to prevent our soldiers from being shot, and I say there are mental bullets flying around there, too."

There's another context to be considered as well, McGaugh notes, one that was made clear by the recent demand from representatives Charles B. Rangel of New York and John Conyers Jr. of Michigan that we reinstate the draft to address racial and economic inequities. "Who are our soldiers?" McGaugh asks. "They are in the wrong place at the wrong time. Very few of their daddies go to Harvard, Yale, or Princeton."

But PTSD doesn't result solely from war. When Kass first heard of McGaugh's research, at a presentation in October, he had a far more intimate horror in mind: rape. "At fraternity parties they'll be popping Ecstasy at night and forgetfulness in the morning," he growls.

The victim would be an obvious candidate for an anti-trauma drug. Would dulling her emotional memories of the event help her to endure the lengthy, perhaps humiliating, pursuit of justice through the courts, or would it rob her of the righteous anger she'll need to persevere and perhaps the empathy to later help other victims? The rapist is part of the equation too. If his victim stabbed him in her own defense, no doubt he would be bodily

healed. No physician could refuse to treat him. "If such a person had PTSD stemming from the circumstances of the act, he could be a candidate [for therapy]," Pitman says.

How much of our remorse do we have a right to dispense with, and how much exists in service to others, a check on our worst impulses? "Each experience we have changes our brain and in some sense alters who we are," says Dr. Joseph E. LeDoux of NYU, who studies emotional memory. "The more significant the experience, the more the alteration. We have to decide as a society how far we want to go in changing the self. Science will surely give us new and powerful ways of doing this. Individuals may want more change than society wants to permit."