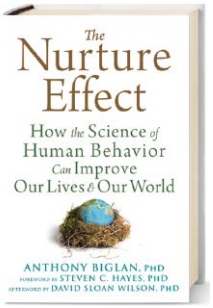
BEHAVIORISM REDUX

The Nurture Effect

By Anthony Biglan. New Harbinger, 2015 ($26.95)



Famed behavioral psychologist B. F. Skinner, my mentor in graduate school, died a happy man. From his hospital bed, he motioned to his daughter to pass him a glass of water, took a sip and said, "Marvelous"—his last word on earth. He had led a long, fulfilling life, and his impact on the behavioral sciences was perhaps unparalleled. There was good reason for his contentment.

Since that day in 1990, however, Skinner's passionate ideas about the central role that behavioral science could play in improving human life seem to have faded away, overshadowed by advances in the cognitive and brain sciences.

Enter Biglan, a research psychologist at the Oregon Research Institute and one of the country's leading experts on how to prevent behavioral and psychological problems in children and teens. In his new book, Biglan reviews a wide range of large-scale programs, many of them government-sponsored, that have put behavioral science to work in tackling just about every human problem you can imagine: smoking, delinquency, crime, teen pregnancy, family conflict, alcohol and drug abuse, poverty—you name it.

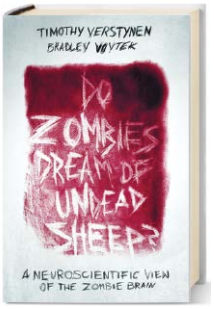
While it may be neuroscience that makes the headlines, Biglan shows that behavioral science in its most basic form is the real workhorse in today's developed world. In the early 1900s, propelled in their thinking by a new philosophy called pragmatism and a fairly new theory called evolution, scientists such as Skinner set about to discover principles of behavior that both revealed the orderliness in behavior and, more important, gave therapists, managers and public policy makers the tools they needed to engineer human behavior in positive ways.

Since then, Biglan says, thousands of behavioral scientists have been working out the details, and many have served as advisers to or directors of some of the most successful behavioral change projects in human history. "In 1965," he writes, "over 50 percent of men and 34 percent of women smoked. By 2010, only 23.5 percent of men and 17.9 percent of women were smoking." He documents similar achievements (albeit not always quite as spectacular) in dozens of areas in which behavioral science has been applied, often quietly and behind the scenes.

All in all, Biglan has given us a compelling read about what behavioral science has been doing for us lately and about the potential such science has for helping us solve new problems. Skinner was far from a spiritual man, but if he was wrong about such things and if he is indeed looking down from the heavens today, he has surely taken note of Biglan's book and said, "Marvelous." —*Robert Epstein*

Q&A

Inside the Mind of the Undead



The wait has been long, but the discipline of neuroscience has finally delivered a full-length treatment of the zombie phenomenon. In their book, **Do Zombies Dream of Undead Sheep?,** scientists Timothy Verstynen and Bradley Voytek cover just about everything you might want to know about the brains of the undead. If you learn some serious neuroscience along the way, well, that's fine with them, too. Voytek answered questions from contributing editor Gareth Cook.

How is it that you and your co-author came to write a book about zombies? Clearly, it is an urgent public health threat, but I would not have expected a book from neuroscientists on the topic.

Indeed! You think you're prepared for the zombie apocalypse and then—BAM!—it happens, and only then do you realize how poorly prepared you really were. Truly the global concern of our time.

Anyway, this whole silly thing started when Tim and I would get together to watch zombie movies with our wives and friends. Turns out when you get some neuroscientists together to watch zombie movies, after a few beers they start to diagnose them and mentally dissect their brains. Back in the summer of 2010 zombie author and enthusiast—and head of the Zombie Research Society—Matt Mogk got in touch with me to see if we were interested in doing something at the intersection of zombies and neuroscience.

What are some of the things you are able to explain, with the help of zombies?

We start with the obvious stuff: Why do zombies move with such a slow, unsteady gait? Why can't they talk? Do they feel pain? We use those obvious questions as stepping-stones toward what we hope is a much more nuanced view of the modern neuroscientific understanding of how the three or so pounds of brain in your head can give rise to the complexities of the human experience. Each chapter tackles a specific behavioral trait relevant to zombies, including movement, hunger, emotions, speech and cognition. We wrote the book with the intent that it could serve as an introductory neuroscience text.

Can you tell me what you learned about Haitian zombies?

I learned that belief can be a very powerful thing. Well, belief combined with powerful neurotoxins and hallucinogens, anyway.

We go into detail in our book about the cultural roots of the Haitian zombie. The word "zombie" comes from an African root word *nzambi,* meaning "spirit of a dead person." Within Vodou, a priest (bokor) can sometimes be asked to take possession of the soul of a particularly troubled or threatening individual. The bokor induces "death" and separates the "little good angel" spirit (*ti bon ange*) from the body. Once "resurrected," the physical body of the person is then forced to work at the will of the bokor.

An anthropological investigation by ethnobotanist Wade Davis postulated that the process of making a Haitian zombie is neuropharmacological, wherein bokors use a chemical found in many animals (especially puffer fish), called tetrodotoxin (TTX), to paralyze their targets and induce a near deathlike state. A sublethal dose of TTX allows the person to "die" and be "resurrected." During the recovery, the victim is forced to consume datura, a plant that contains chemicals such as scopolamine and hyoscyamine, powerful hallucinogens that leave the person delirious and compliant. Datura alters the victim's state of mind, making them easily coercible. The whole idea is fascinating. It sounds so far-fetched and unbelievable, but from a neuroscientific and psychological perspective, it's not impossible.