



Developing Psychotropics: From Karma to Pharma

A Review of

Drugged: The Science and Culture Behind Psychotropic Drugs

by Richard J. Miller

Oxford, UK: Oxford University Press, 2014. 359 pp. ISBN

978-0-19-995797-2. \$39.95

<http://dx.doi.org/10.1037/a0038337>

Reviewed by

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Drugged: The Science and Culture Behind Psychotropic Drugs is the product of a brave and courageous writer. Richard J. Miller uses a number of styles and approaches to tackle the multifarious social, cultural, biochemical, political, and clinical angles associated with psychotropic drugs. I believe he has hit the spot exactly. This book will appeal as much to scholars of history and anthropology as it will to psychopharmacologists and doctors like myself—not to mention the growing hordes of night-time psychonauts, who will love to cram their crania with the endless trivia and facts about all of the finer aspects of drugs.

The cleverest feature of the book is that Miller tells the story from the point of view of the molecules themselves. It is around these chemical forms that he weaves the narrative. The substances emerge from the pages as if they were characters in a story book. At the heart of these varied drugs—LSD, DMT, and psilocybin—lies the shared tryptamine molecule. The author also brings in the musicmole and ibotenic acid of *Amanita* mushrooms, which carries us to Gaboxadol. Then from LSD and from Mexican conquests we travel to the molecules at the heart of the Greek mysteries. All the while the book's readers are learning about tryptamines and their derivatives that permeate the vines and cacti of the ancient world. The story spirals through time to arrive at The Pink Spot, where schizophrenia and psychedelia converge, and Osmond and Shulgin put their stamp into the history books.

Drugged is a treasure trove of molecular anecdotes. Miller appropriately challenges the stupidity of the current drug laws and the hypocrisy and greed that underlie the development of drugs for profit, the demonization of recreational drug users, and the lies and high-ranking political decisions that so consistently seem to have “backed the wrong guy” whilst maligning society's heroes. Miller reminds readers that not only have psychedelics been inappropriately denigrated by history, but they are in fact the drivers behind the birth of modern psychopharmacology. Psychiatry ought to be shouting from the rooftops about how psychedelic drugs are at the forefront of the origins of brain science, not something dirty and forbidden that should be assigned to the basement of medical history. But as so often happens where politics is involved, the sociopolitical meddling has been

allowed to dictate the path of scientific progress and even rewrite the history books so effectively that today most people still see the remarkably innocuous (and remarkably clinically useful) psychedelic drugs as at best worthless and at worst dangerous and evil machinations of the devil.

Like so many books on the subject, *Drugged* draws on the oft-told rehashing of the usual characters: Leary, Kesey, and others. In my opinion, Miller's accounts of these psychedelic pioneers are not the best version of tales I have read on the subject, but his understanding of the neuroscience—and particularly the chemistry—is second to none. Nevertheless, there are some notable omissions in the section in which he describes contemporary research about how LSD and the other classical psychedelics work in the brain. In particular, the recent ground-breaking work of Carhart-Harris is notably absent. Carhart-Harris's work with LSD and psilocybin has rewritten the way neuroscientists think about the action of classical psychedelics in the brain (Carhart-Harris, Erritzoe, et al., 2012; Carhart-Harris, Leech, et al., 2012).

Drugged bombards the reader with the most wonderful tidbits of information. I repeatedly found myself thinking, "Well I never. I did not know that!" as I read yet another extraordinary fact. One example is Miller's description of the links in the chain that carries Chlorpromazine's history from the mauve color of Queen Victoria's dresses to the eventual emptying of psychiatric hospitals in the 1950s. Indeed, the dye industry drove the chemical industry, which in turn led to the development of more sophisticated technology industries and eventually to the pharmaceutical industry we know today. Dyes are at the center of it all, and I had no idea that the chemical constituents of indigo blue (which still colors all denims today) are also at the root of the development of the barbiturate drugs, which just shows what a goofball I am.

As a psychiatrist, I feel more empowered having read this book, knowing that I now have a greater understanding of the drugs I dish out on a daily basis. Interesting linkages—like that between Pethidine and Belgians, cycling and Haloperidol—are all here in *Drugged*. Miller is no shyer of celebrating the successes of pharmacy than he is of pointing out the dangers of Big Pharma. With accuracy, he describes how companies such as Eli Lilly; Pfizer; Smith, Kline and French; Parke-Davis; and Squibb came into being from humble beginnings, how products such as cocaine and heroin were popularly used legal products—pushed by the drug companies for maximum profit—and how the companies began to develop a cozy relationship with psychiatry. Diagnoses were invented out of thin air to fit the subsequent new psychotropic products emerging from the laboratories. "Anxiety" became a clinical reality as soon as benzodiazepines appeared, and "depression" as a medical entity was not born until along came the antidepressants to deal with it.

In another chain of wonderful links, selective serotonin reuptake inhibitors (SSRIs) emerge from none other than the Nazi's decommissioned V1 and V2 rockets, whose hydrazine fuel cells found their way into pharmaceutical companies and hence into antituberculosis and eventual antidepressant drug developments. Readers journey along with molecules as Miller paints the story of the dopamine and monoamine hypotheses in such a beautiful way. I only wish it had been told like this at medical school. If it had, we might have had a larger cohort of students choosing psychiatry as a specialist career in medicine.

Drugged can sometimes be a difficult book to read. It takes a relatively avid chemistry fan to stick it out in places. But the tricky molecular passages are always shorn up by the

memorable stories of the often-hapless inventors or the moving human tragedies of the patients who eventually get to benefit from the work of the chemists. The section on opiate drugs is given rightful respect and attention. Miller reminds readers, "morphine is without hesitation the most significant chemical substance mankind has ever encountered" (p. 163). He draws readers into the pre-War on Drugs mind-set, something that is difficult to achieve, given the amazing diversion from the facts that this insane political folly of the last 50 years has managed to wreak on society. Readers watch the preceding generations walk slowly into dependence and watch as society initially accepts, propagates, then eventually rejects and vilifies heroin and its cousins. Heroin was first marketed by the German company Bayer in 1898 as a cough suppressant, billed as "100 times safer than codeine" and totally "non-addictive." And thus was born an entire underclass of rag and bone men who were forced to sell their junk to pay for their medicine, thus the term "junkie."

Given the success of the German and Swiss pharma industries, the subject of Nazis crops up frequently. It is a fascinating tale of intertwining sensibilities and moral conflicts that led to the development of Valium by the Jewish chemist Leo Sternbach. The subsequent development of anxiety as a clinical phenomenon grew out of a gradual societal shift in attitudes toward abstract art, changes in musical tastes, and a broadening of social attitudes. By the time I started practicing medicine in the 1990s, barbiturates were on their way out of mainstream psychiatric practice, recognized as a mistake of the previous generation. And Shipman was around the corner with his lethal doses of diamorphine. What I didn't know was that another U.K. doctor killed 150 of his patients with the barbiturate sodium barbitone 50 years earlier, a series of truly heinous crimes.

By the second half of the 20th century, there was a "pill for everything" and psychiatry became easy prey to society's need for instant cures. Big Pharma racked them up and psychiatrists banged them out. Meanwhile the general public ramped-up their sophisticated approach to recreational drug taking. Miller throws in the development of alcohol, tea, coffee, and chocolate, and then lines up cocaine and other stimulants with more great stories and enlightening chemistry. I was disheartened, however, to see so little attention paid to MDMA (methylenedioxymethamphetamine) and Ketamine, two drugs that have become enormously important in today's recreational drug scenes, both with interesting developmental histories and both, crucially, with emerging potential clinical benefits for psychiatry. Indeed, Miller pays little attention in general to the exponentially growing subject of psychedelic research as an adjunct to psychotherapy. And not a great deal is said about the frightening pace of change of the research chemicals and online Silk Road approach to buying drugs. Perhaps this is something that the younger generations can educate Miller about?

But there is no hiding Miller's love of drugs and their historical development. (He seems particularly poetically drawn to cannabis). Each chapter begins with an obscure history lesson, and it is only a matter of time before those molecular structures appear and Miller is methylating this, phosphorylating that. His enjoyment of the subject is palpable, and the result is a lovely book full of not only facts but also inspirational stories. *Drugged*. You will be.

References

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