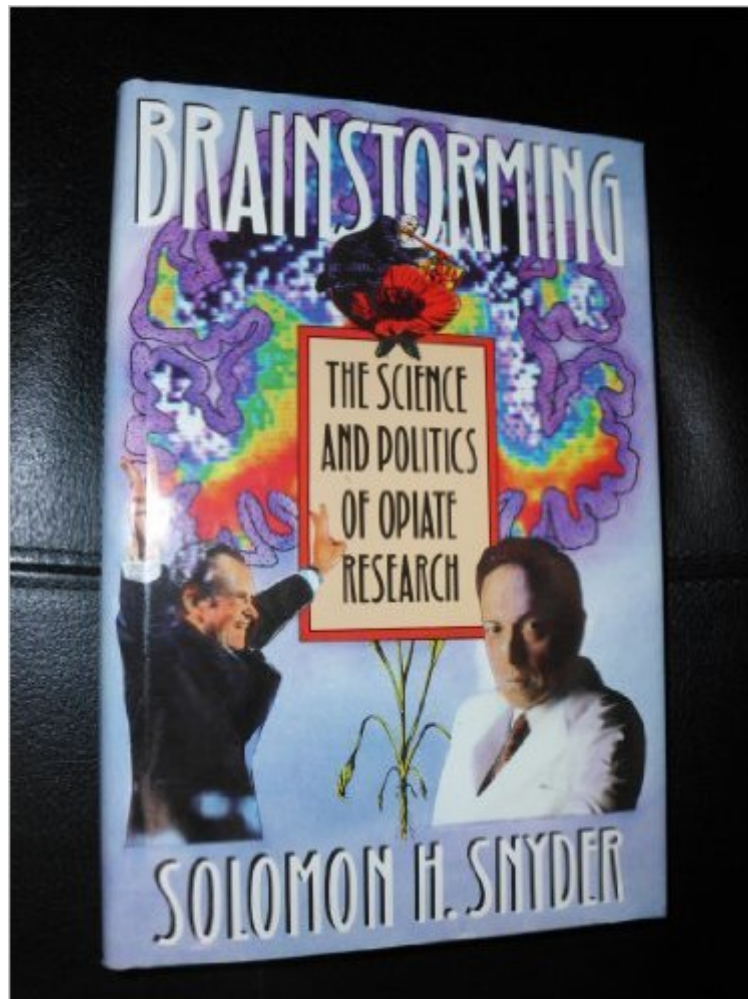


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Brainstorming: The Science And Politics Of Opiate Research



Synopsis

The discovery of how opiates such as morphine and heroin relieve pain and produce euphoria is one of the most dramatic tales of modern science. It begins in 1971 when, at the height of the undeclared war in Vietnam, Richard Nixon officially announced a war on drugs. Heroin addiction--no longer confined to urban ghettos--was causing bad public relations for the White House. The specter of young American soldiers demoralized, drugged, and committing atrocities was not the image President Nixon wished to convey as he argued for further bombings of North Vietnam. In this book Solomon Snyder describes the political maneuverings and scientific sleuthing that led him and Candace Pert, then a graduate student in his lab, to a critical breakthrough in the effort to understand addiction. Their discovery--the so-called opiate receptor--is a structure on the surface of certain nerve cells that attracts opiates. Heroin or morphine molecules fit into opiate receptors much as a key fits into the ignition switch of a car--thus turning on the engine of the cell. Snyder and his students were able to show that nerve cells which possess opiate receptors are found in precisely those parts of the brain that control emotion and pain. Dr. Snyder describes the friendly yet intense competition from other researchers to expand upon this initial discovery. From the work of two Scottish investigators, Hans Kosterlitz and John Hughes, neuroscientists now know not only where opiate receptors are found in the brain but also why they are there: to serve as binding sites for an opiate-like substance produced by the brain itself--the brain's own morphine. This substance, called enkephalin, regulates pain, mood, and a host of other physiological functions. From this very human chronicle of scientific battles in the ongoing war against pain and addiction, we gain an appreciation of the extraordinary intellectual processes of an eminent scientist. But Dr. Snyder's story of scientific brainstorming also affords us rare glimpses into the fruitful, sometimes frustrating, relationships among scientists which enrich and complicate creative work. We are reminded of the delicate political alliances that are forged at every level of organization, from the lab bench to the Oval Office, as the scientific community attempts to fit its needs to those of the larger society.

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Customer Reviews

"Brainstorming": was published in 1989, just in time for a new drug war. There have other new, new drug wars since. "Brainstorming" was not encouraging, but it is still worth reading. Richard Nixon was no more sincere about drugs than about anything else. Nevertheless, Nixon's drug war had one good, dramatic and unplanned result. Solomon Snyder, a laboratory medical researcher, had not paid any attention to opiate addiction until a friend was appointed Nixon's drug czar. By a little bureaucratic one-upsmanship, they managed to shake loose some money (about 2% of the federal antidrug effort) for basic research. The results were immediate and extraordinary. Snyder and his student Candace Pert identified the receptors in the brain that accept opiates. This explained the mysterious effect of naloxone, which was already used in 1973 to shut down an opium overdose. Other researchers found similar receptors in the pituitary gland, a big surprise. The obvious question was: Why had evolution equipped humans with specialized nerve systems to recognize the juice of a poppy? (Another of Snyder's students, a high school student, David Aposhian, showed that all vertebrates have opiate receptors, and it was later shown that invertebrates do, too.) The answer was that the body creates its own powerful drugs, later named enkephalins and endorphins, and the juice of the poppy happens to mimic their effect. This led to hopes for a powerful synthetic drug that would block addicting opiates, and for new, non-addicting painkillers. Snyder explains why neither hope was fulfilled. Nor are they likely to be.

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