

Class Meeting 9

Psychosurgery: The clinical neuroscience of violence and vice versa

PREPARATION:

Here, we're asking you to go through a lot of material. Everyone should watch the film and read the first two articles. Groups feeling overwhelmed by the volume of the material are encouraged to jigsaw the last two articles (9-3 and 9-4) among themselves.

VIEW: 9.1 In Michael Crichton's novel and film "The Terminal Man" a computer scientist with "a violence problem" becomes both a hospitalized mental patient and an experimental subject in a neurophysiological research project concerning "violence and the brain".

http://www.amazon.com/gp/product/B000P3MRGW/?tag=imdb_avod/ref=atv_feed_catalog/

A somewhat self-serving "official" website of the late author <http://www.crichton-official.com/terminal/index.html> offers the following rather misleading summary of his book:

In the 1970s (1966), I saw a patient in a hospital who was being treated with electrodes implanted in the brain, hooked up to a monitoring computer. I thought this treatment was horrific, and I was amazed that the research seemed to be going forward with no public discussion or even knowledge. I decided to write a novel to make such procedures better known. This particular kind of surgery is no longer done much, so the journalistic aspects of the story are gone.

Crichton, who recently died at age 66, was trained as a physician and was coincidentally working as an intern or resident on the psychiatric neurosurgery service at Massachusetts General Hospital in the mid-1960s. "Harry Benson" -- the central character in the book (and movie) is loosely based on the actual person that the authors of the following work describe as "Thomas R".

READ: 9-2 Mark, V.H. and F.R. Ervin, (1970) *Violence and the Brain*, Harper & Row, New York. (excerpts)

READ: 9-3 Chorover, S.L. "Kille Case Chronology"

READ: 9-4 Chorover, S.L. "The Pacification of the Brain: From Phrenology to Psychosurgery", in Morley, T.P. (ed.) (1976) *Current Controversies in Neurosurgery*, W.B. Saunders Co., New York.

READ: 9-5 Chorover, S.L. "Physician vs. Researcher: Values in Conflict?", *Wellesley*, 4, 1979, pp. 21-27.

READ: 9-6 Chorover, S.L. "Violence: A Localizable Problem?", in Valenstein, E. (ed.) *The Psychosurgery Debate: Scientific, Ethical and Legal Perspectives*

Using our multilevel approach, we now focus on a neurobiologically psychologically and socioculturally complex medical and legal case study. In the process, we will learn something about the true and tragic tale of Leonard Arthur Kille (1933-1996) – the man dubbed "Thomas R." by Drs. Vernon Mark and Frank R. Ervin in their 1970 book "Violence and the Brain, and the "Harry Benson" who is the "Terminal Man"

Drs. Mark and Ervin describe "Thomas R. ...as a brilliant 34-year old engineer with several important patents to his credit". According to them, his principal presenting complaint was "episodic dyscontrol"

characterized by uncontrollable outbursts of unprovoked rage often accompanied by violently abusive verbal and physical assaultiveness – most of it aimed at his wife. At MGH, after chronically indwelling electrodes were stereotaxically implanted bilaterally in a particular portion of his brain's limbic system (the amygdala), Mr. Kille was intermittently and repeatedly subjected to many weeks of observations (including electroencephalographic [or EEG] recording of his "brain waves") and occasionally, the implanted electrodes were used to "stimulate" his amygdalae, thereby provoking a wide range of affectively-charged reactions. In due course, he was given a neuropsychological diagnosis.

More to the point, those in charge of his case identified him as a man afflicted by a previously unknown neuropsychological disorder of their own discovery or invention (namely "episodic dyscontrol syndrome due to limbic brain disease"). And on that basis they proceeded to employ "psychosurgery" to "treat his unfortunate illness". Using methods of procedure that had long been employed in other contexts to selectively destroy brain tissue at the tips of implanted electrodes, Mark and Ervin subjected Mr. Kille to what is technically known as bilateral stereotaxic amygdalotomy. For a calibrated period of time on several successive occasions, brain tissue in the vicinity of the electrode tips in Mr. Kille's brain was "cooked" by passing into it, through the uninsulated tips of the previously implanted and chronically indwelling arrays of electrodes, high frequency currents with a relatively high coefficient of heating. He (Thomas R.) was a real engineer. His name was Leonard Arthur Kille and he did have some patents to his credit in connection with his work on the design and manufacture of the Polaroid Land Camera, among other things.

We'll tell his story at some length – from the time he came into the world in the usual way in Cambridge, MA (1933), until he died – a longtime chronically hospitalized and incurable mental patient at the VA hospital in Bedford MA.

What is bilateral stereotaxic amygdalotomy? What is "episodic dyscontrol syndrome? How did the former come to be proposed and actually used as a "treatment" for the latter?

What we know about Mr. Kille and what happened to him comes largely from family sources, and even more so from some of the materials that began coming to light after 1973 when his mother, acting as his legal guardian, brought on his behalf a complex medical malpractice suit against the doctors. Kille's case is a socially, scientifically, technically, clinically, and legally complex one – and valuable in illustrating some of the scientific/ethical issues involved in the use of brain stimulation and/or destruction as a means of controlling putatively deviant or pathological human thoughts, feelings and actions. (The multi-count legal case came to trial in a Boston courtroom in 1978 and lasted for several weeks. It ended with the jury rendering a verdict in favor of the defendants on all counts.)

Is psychosurgery a "perfectly rational" form of "therapeutic intervention"?

Or is it a socially unwarranted form of brain manipulation or "mind control"? A politically convenient example of crude neuropsychological reductionism?

By this point in the term, it probably goes without saying (but since a lot of this reading assignment consists of material written by the instructor, it possibly deserves re-emphasis) that you are expected to arrive at and express your own considered opinion. We do not want you to tell us what you think we want to hear. If you agree/disagree with what you are reading, please feel free to say so, provided only that you back up your opinion with evidence and argument as needed.

WRITE: Reaction Paper #8

NOTE:

Looking ahead through the syllabus at topics still to come, you should already be thinking about the topic of your term paper. Proposals no longer than two pages in length may be submitted for approval at any time between now and the proposal deadline (2 days before class session 10).

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9.68 Affect: Neurobiological, Psychological and Sociocultural Counterparts of "Feelings"
Spring 2013

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