

# The 'gay cure' experiments that were written out of scientific history

July 5 2016, by Robert Colvile

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For the first hour, they just talked. He was nervous; he'd never done this before. She was understanding, reassuring: let's just lie down on the bed together, she said, and see what happens. Soon, events took their course: they were enjoying themselves so much they could almost forget about the wires leading out of his skull.

The year was 1970, and the man was a 24-year-old psychiatric patient. The woman, 21, was a prostitute from the French Quarter of New Orleans, hired by special permission of the attorney general of Louisiana. And they had just become part of one of the strangest experiments in scientific history: an attempt to use pleasure conditioning to turn a gay man straight.

The patient – codenamed B-19 – was, according to the two academic papers that catalogued the course of the research, a "single, white male of unremarkable gestation and birth". He came from a military family and had had an unhappy childhood. He had, the papers said, entered the military but had been expelled for "homosexual tendencies" within a month. He had a five-year history of homosexuality, and a three-year history of drug abuse: he had tried glues, paints, thinners, sedatives, marijuana, LSD, amphetamines, even nutmeg and vanilla extract. He had temporal lobe epilepsy. He was depressive, suicidal, insecure, procrastinating, self-pitying and narcissistic. "All of his relationships," wrote his doctors, with an unsparing lack of sympathy, "have been characterised by coercion, manipulation and demand."

In 1970, B-19 ended up in the care of Robert Galbraith Heath, chair of the department of psychiatry and neurology at Tulane University, New Orleans. Heath's prescription was drastic. He and his team implanted stainless steel, Teflon-coated [electrodes](#) into nine separate regions of B-19's [brain](#), with wires leading back out of his skull. Once he had recovered from the operation, a control box was attached which enabled him, under his doctors' supervision, to provide a one-second jolt to the brain area of his choice.

Before being given control of the electrodes, B-19 had been shown a film "displaying heterosexual foreplay and intercourse". He reacted with anger and revulsion. But then the stimulation sessions started, delivered via the button that felt most pleasurable to him. Over the next few days, he found that it could arouse him, and he would press the button to stimulate himself "to a point that, both behaviorally and introspectively, he was experiencing an almost overwhelming euphoria and elation and had to be disconnected, despite his vigorous protests". He would hit the button up to 1,500 times over a three-hour session. "He protested each time the unit was taken from him," said one of the papers, "pleading to self-stimulate just a few more times."

Ten days into his treatment, the doctors suggested that B-19 watch the porn film again. "He agreed without reluctance... and during its showing became sexually aroused, had an erection, and masturbated to orgasm." He started talking about wanting to have sex with women – and so Heath got permission to hire what he later referred to as a "lady of the evening". "We paid her \$50," he said. "I told her it might be a little weird, but the room would be completely blacked out with curtains."

She certainly did her job, guiding B-19 through the process and encouraging him to gradually build up his confidence. "As the second hour began, she relates that his attitude took an even more positive shift to which she reacted by removing her bra and panties and lying down

next to him. Then, in a patient and supportive manner, she encouraged him to spend some time in a manual exploration and examination of her body." Despite his initial shyness, he ended up having such a good time that – much to his doctors' delight – he often paused before the moment of orgasm, in order to prolong his pleasure.

B-19 features in two 1972 papers: 'Septal stimulation for the initiation of heterosexual behavior in a homosexual male', by Heath and his colleague Charles E Moan, and 'Pleasure and brain activity in man', by Heath alone, which set out – apparently for the first time – what happens to human brainwaves during orgasm. The papers are extraordinary: at once academic and pornographic, clinically detached and queasily prurient. And they prompt all sorts of questions. Who was this Dr Heath? How on earth did he come to carry out this experiment – and get permission for it? And did it really, you know, work?

In the course of trying to unravel these questions, I read Heath's papers, interviewed his former colleagues, and travelled to New Orleans to see where he worked and to watch the videos in which he reminisced about his career. And what I found was something more remarkable than I could have imagined – the story of the man responsible for some of the strangest, boldest and most controversial experiments of the 20th century, yet who has been almost entirely written out of scientific history.

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The first thing you have to understand about Bob Heath is his charisma. If you were casting a movie and looking for someone to play the scientist-hero, he would be the first and last name on your list. In every profile, every interview, the topic of his presence came up: he was Gary Cooper or Cary Grant or Gregory Peck in a crisp white lab coat. "He looked like a god – and carried himself like one," says his former colleague Marilyn

Skinner.

The second thing is that he was talented – perhaps too talented. He was board-certified in both psychiatry and neurology. He was a qualified psychoanalyst. He could treat a patient, diagnose a mental illness, read an EEG and dash off a paper, all before heading off to the country club for a round of golf.

The third thing is that the one true love of his life wasn't a woman, but an area of the brain. Imagine a line that goes through one ear and out the other. Now take another line that runs dead centre from the top of your skull and down through your tongue. Where the two meet is what Heath labelled the septal area, although scientists today would probably call it the nucleus accumbens. For Heath, it was the seat of pleasure and emotions that he thought would allow him to unlock the human brain.

Born in 1915 in Pittsburgh, Heath trained as a neurologist, before being drafted into service as a military psychiatrist in World War II. He rapidly aligned himself with the new breed of biological psychiatrists – scientists who argued that what were traditionally thought of as diseases of the mind were often actually diseases of the brain and could therefore be cured through surgery, not therapy.

There was already some obvious evidence for this, in the shape of the way that patients' behaviour changed after prefrontal lobotomy. This was the most widespread form of what was known as psychosurgery – the surgical treatment of mental illness. Yet even though the procedure, which involved chopping away the connections to much of the brain's frontal lobe, was growing in popularity, Heath and his colleagues at Columbia University rightly viewed it as crude and ineffective. They decided to compare it with a much less invasive alternative, which they called topectomy: this involved targeting and removing specific areas of the cortex, in order to avoid wider damage to the brain.

Heath had already developed a particular interest in schizophrenia, which he viewed as the single greatest challenge in [mental health](#), affecting roughly 2 per cent of Americans. He noticed that such patients seemed largely unaffected by either lobotomy or topectomy; since these procedures targeted only the most immediately accessible part of the brain, the cortex, he concluded that their symptoms must be more deep-rooted.

So Heath began his investigations of the subcortex (literally, 'the part below the surface'). And one particular area – the septal region – appeared particularly promising. When it was damaged or destroyed in cats and monkeys, they started behaving in a startlingly similar fashion to people with schizophrenia: their emotions were dulled, they lost their ability to experience pleasure (a phenomenon known as anhedonia), and they generally seemed to be removed from reality.

This reinforced Heath's burgeoning conviction that schizophrenia was a biological, not a psychological, problem: something "dependent upon a defect in basic machinery, rather than a complication of environment", as he would later write. By implanting electrodes into the deepest parts of the brain, he could not only examine how this machinery operated, but also – he hoped – jolt it back into life.

There was just one problem. Heath could – and did – carry out all the tests he wanted on animals, but he couldn't test his theories on humans: not so much for ethical reasons as because his colleagues at Columbia weren't interested in the subcortex. Then, on a trip to Atlantic City, he found himself lying on the beach next to a man from New Orleans. He was the dean of Tulane University's medical school, and he was looking to set up a psychiatry department. He'd heard good things about a guy called Bob Heath. I'm Bob Heath, said Bob Heath. And so they started to talk.

For the 35-year-old, the job at Tulane was an irresistible opportunity. New Orleans was an academic backwater. But it had something very special: in the words of his future colleague Arthur Epstein, "a big sprawling beautiful hospital, containing some of the sickest patients you will ever see".

This was Charity Hospital, a vast, brutalist 1930s edifice through which the poor and sick of New Orleans flowed in their thousands. Heath was open about the fact that it was this endless supply of potential patients – or, as he put it, the "tremendous amount of clinical material" – that attracted him to the job, because it gave him the chance to realise his outsize ambitions. He moved to New Orleans in 1949: within a year, he had persuaded Charity's governors to budget up to \$400,000 to set up a 150-bed psychiatric unit on the third floor, which would enable him to tackle a waiting list for psychosurgery that was already ten months long.

Heath's new position made him one of the most powerful men in the Louisiana mental health system. As well as Charity, he held positions at other New Orleans hospitals such as DePaul, Touro and the Veterans Administration Center, and later Tulane's own private hospital. He maintained an experimental unit – at the state's expense – at the East Louisiana Mental Hospital in Jackson, and was involved with another facility in Mandeville. If he needed healthy volunteers, he had free access to inmates at the state prison complex at Angola.

On top of this, there was his role within Tulane. Uniquely, his new department combined not just neurology and psychiatry – itself a reflection of his then-radical commitment to treating the mind and brain as linked – but also a psychoanalytic institute modelled on the work of his mentor Sandor Rado, who had argued for the key role of pleasure in motivating behaviour: Heath urged all of his colleagues to learn analysis, and to be analysed themselves. By 1970, the time of the 'gay cure' experiment, there were almost 200 staff and medical students under his

supervision.

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In 1952, Heath and the colleagues he had recruited from Columbia and elsewhere revealed the first fruits of their work. At a scientific conference (written up as the 1954 book *Studies in Schizophrenia*), they described how they had honed their techniques, developing better and safer methods of implanting ever more electrodes and leaving them in for ever longer.

These electrodes had, they announced, uncovered "an abnormality in the septal region" – unusual brainwave patterns, seen during seizures, that were exclusive to schizophrenia. And their use of electrical pulses to stimulate the same area had had promising results with the initial 22 patients, 19 of whom were schizophrenic. (The others were two patients with terminal cancer and one with acute TB: Heath wanted to see whether septal stimulation would offer relief from their incurable pain.)

The tone of the reports – and of most of the observers' comments – was upbeat. Professor Herbert S Gaskill of Indiana University, while admitting that the clinical results were not conclusive, praised the "breadth of vision and imagination which this research study has shown", calling it "of inestimable value".

Yet you do not have to read through many of the 600 pages of *Studies in Schizophrenia* to feel slightly different emotions. The type of electric pulse, Heath and co admitted, was "arbitrarily chosen" because it seemed to work on animals: "We are still by no means certain that it is the most effective way of influencing the circuit." Among the first ten patients, "Two patients had convulsions... wound infection occurred in two cases." Among the second ten, there were two deaths, both related to brain abscesses that developed following the operation. Some patients

developed infections, others had convulsions. Patient 21 "tugged vigorously at his bandage and displaced the electrodes". Patient 12 had two electrodes put in the wrong place.

When the electrical currents were activated, several of the patients had seizures. Patient 13 "complained of nervousness, urinary urgency and chills". Patient 14 "developed a generalized terror, which appeared to be associated with his extreme apprehension and fear and which persisted for several minutes after stimulation". Patient 16 "became quite agitated", with her blood pressure spiking to 178/110. Patient 17 developed "marked cardiac arrhythmia", and "in both stimulations, the patient's eyes were seen to open widely, and she said she was afraid". Patient 22 "expressed great fear, and at one point it took four or five people to restrain her".

If these studies make uncomfortable reading, they make for even more disturbing viewing. Heath filmed many of his experiments over the years, showing the results to colleagues and visitors. After his death, the films were seen by neuroscientist Gregory Berns, while researching his book *Satisfaction*. He describes watching footage of patient A-10, a member of the Army whose erratic behaviour saw him diagnosed as a paranoid schizophrenic, and entrusted to Heath's care in 1952.

The full description is harrowing. At one point, A-10 rakes his face with his hands, squirms, and complains of "going black in the head", before curling into the fetal position and saying: "I can't think of nothing when my brain is turning up like that. Oh, no... before I pass out! I don't want to pass out... Oh, my brain!"

"Suddenly," writes Berns, "the patient's voice changes. He screams in a pitch so high it is uninterpretable. Then he starts tearing at his clothes, trying to rip off his shirt, and gets up from the gurney.



"The interviewer says, 'You're tearing at your clothes. Do you know you're tearing at your clothes?' On the verge of incoherence, in a falsetto voice, the patient screams, 'I don't care! I gotta do something! I don't care. I don't care!' Pausing for a moment, he starts to get off the gurney again before yelling, 'I'm gonna rip you up!'"

"Several hands come into view and hold the patient down, tying his hands. 'Stop!' the interviewer commands. 'Stop!' The patient stares into the camera and hisses, 'I don't give a goddamn. I'm gonna kill you. Let me up. I'm gonna kill you and rip you to goddamn shreds!'"

Even by the standards of the time, these experiments were radical and strange – and they duly caused an uproar. Heath and his acolytes later blamed this on the hostility of the American Psychological Association, in which the emotional rather than biological model of mental health was firmly entrenched (a popular theory on schizophrenia, for example, was that it was caused by poor parenting – the "schizophrenogenic mother"). But as Heath admitted, his work also "caused a great deal of emotional upset to a lot of people at the 1952 meeting" – particularly the stimulation of "averse emotions of an intense degree", such as rage or fear.

There was another problem: while the work had improved scientists' understanding of the brain's circuitry, it hadn't actually done much to cure schizophrenia. Heath had been encouraged by the initial results of stimulating patients with electrodes: "if they were catatonic and mute, they would begin to talk; if they were very delusional, they would tend to come back towards reality to varying degrees". But in the long term, the risk of damage from the electrodes' implantation appeared to outweigh any benefits from the treatment: of the initial 22 patients, four who had had abnormal brainwave patterns showed improvement a few months later, but at least the same number who had had normal patterns developed "evidence of gross abnormality". Also, although Heath did not acknowledge it, any improvement may have come about simply because

the chosen patients were getting more attention from their doctors.

By 1955, Heath had stopped the study, on the grounds that "the lasting beneficial effects in the patient group... have not been significant". But this did not mean that he was done with his electrodes. He was just getting started.

He noticed that the same jolt to the septal area, in depressed but non-schizophrenic patients, resulted in an intense sensation of pleasure, almost ecstasy. Given the chance to stimulate themselves, some of his patients would do so hundreds of times an hour, just as rats did in similar experiments (and as patient B-19 later would). In one of Heath's films, a man who has just tried to kill himself starts to smile when his electrodes activate, saying: "I feel good. I don't know why. I just suddenly felt good". He adds: "When I get mad, if I push the button I feel better... that's a real good button... I would buy one if I could."

Soon, Heath was coming up with all manner of uses for those buttons. In 1963, he reported that he was treating two new types of patient. One, with epilepsy, had 51 electrodes implanted into 17 separate brain sites in an attempt to disrupt seizures before they happened. The other, a 28-year-old nightclub entertainer with narcolepsy, was given a self-stimulation unit with three buttons, each linked via electrodes to a different part of the brain. Like B-19 later on, he quickly settled on the button connected to the septal area as his preferred option. If he felt himself falling asleep, he would push the button – or his friends would give him a jolt to wake him up. But he also learned another use for the button: to push it in a "frantic" fashion. "It built him up toward a feeling of orgasm that he was never quite able to consummate", writes the campaigning psychiatrist Peter Breggin in his book *The Return of Lobotomy and Psychosurgery*.

Heath's was a time in which damaging or experimental procedures were

commonplace: there were almost none of the controls or restrictions that we have today. But even so, his radicalism stood out.

Other doctors would implant a few electrodes for a few days; Heath implanted dozens, and left them in for years. Others experimented with animals; Heath experimented with people and animals both, feeding the findings from one set of tests into the next. Others tested the pleasure reflex under carefully controlled laboratory conditions; Heath handed patients the control boxes and set them loose to juice themselves as they saw fit. One of them ended up in Chicago, trying to sell himself and his hardware to the university for \$5,000; another popped up in New York, whose police force called Heath on the grounds that he was the only one anyone could think of whose patients had wires coming out of their heads.

Heath was, in other words, a man of extraordinary curiosity – and in a position to follow his muse wherever it took him, or have one of his many subordinates do so on his behalf. While septal stimulation was the constant of his career, he engaged in an enormous variety of other work, publishing at least 425 papers.

Among these were his efforts to treat gay men by turning "repugnant feelings... toward the opposite sex" into pleasurable ones – and similar work on "frigid women". He experimented with dripping drugs deep into the brain down tiny pipes called cannulae, targeting the same regions as his electrodes. He tested a 'brainwashing' drug called bulbo-capnine for the CIA, on both animals and (although he denied it for decades) on a human prisoner, as a small part of the vast and largely illegal 'MK-ULTRA' programme to explore the limits and limitations of the American body.

He talked a suicidal patient down from a roof. He injected horseradish peroxidase into the brain to see how it carried chemicals. He gave a talk

to the Army on electrical stimulation of the brain, after which his department was contracted to test psychoactive drugs on prisoners: the resulting paper, from 1957, is as macabre and gripping as the studies involving B-19, complete with detailed descriptions of the patients' behaviour and hallucinations.

In 1972, the New Orleans Times-Picayune newspaper reported that Heath had been able to "record septal activity resulting from alcohol, tobacco, amphetamine, marijuana and sexual orgasm". At around that time, he began testing the effects of marijuana on monkeys by blowing smoke into their cages: the equivalent of 250 joints a day. "Memo to the parents of New Orleans," ran the resulting report in the Times-Picayune in 1974. "If you've been trying to persuade yourselves that the 'pot' which 'Junior' is smoking isn't harming him, listen to this." Marijuana, Heath claimed gravely, could cause brain damage, respiratory damage – and erectile dysfunction.

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For all the volume and variety of his work, Heath's contemporary reputation rested on one particular discovery – again the product of his work on the septal region.

As well as stimulating the schizophrenic brain, Heath was studying it. He wanted to know what was different about the tissue, the chemicals, the genes that caused the anomalies he had found. Examining blood samples and brain matter from people with schizophrenia, he discovered a mysterious substance he called taraxein, which seemed to be generated in the septal area.

This was, he dramatically announced in 1956, not a by-product of schizophrenia: rather, it seemed to be its cause. If you took a serum of taraxein and injected it into monkeys, they started showing

schizophrenia-like symptoms. A couple of hours later, they were completely back to normal. When he tried it on people, the results were the same. The report caused a sensation.

And in 1967, Heath doubled down, claiming that further investigation had revealed that taraxein was in fact an antibody produced by the brain. The first line of Tulane's press release suggested this might well be "one of the most significant scientific advances in the field of psychiatry", and it was hard to disagree. What Heath had discovered – as the global media eagerly reported – was that people with schizophrenia were, in effect, allergic to their own brains. There was talk of a Nobel Prize.

There was just one problem: taraxein didn't exist. Or if it did, no one else could find it. Even some of the technicians charged with isolating and purifying the substance became convinced that it didn't actually exist. James Eaton, a colleague of Heath's who witnessed a failed demonstration for visiting dignitaries, says it became clear that the patients were acting crazy because that's what they realised Heath wanted: when the 'taraxein' was administered by other doctors, their behaviour was unchanged.

This controversy damaged Heath's national reputation – already imperilled by a feud with Seymour Kety, who as the first director of the National Institute of Mental Health ensured that Heath was always denied federal funding for his work, and had to go cap in hand to private donors. But it did not change things in Louisiana: Heath continued to be given awards and positions, to be respected and venerated.

Yet a wider backlash against psychosurgery was stirring. It wasn't just lobotomy, although that was increasingly discredited: there seemed to be a laundry list of damaging, dangerous or disturbing treatments being carried out around the USA. Fears of mind control and brainwashing, stoked by the success of the film *The Manchurian Candidate*, cast

suspicion on any research involving drugs and electrodes to manipulate the mind.

In 1972, Peter Breggin published an essay warning of the dangers of psychosurgery, including Heath's work, which a sympathetic Congressman inserted into the Congressional Record. It caught the attention of Todd Ochs, a member of the Medical Committee for Human Rights (which provided care for civil rights activists across the South) who was working at a free clinic in the French Quarter of New Orleans – and as a paramedic at Charity Hospital. Ochs and his committee took up the cause, and he alerted his friend Bill Rushton, a gay rights campaigner and investigative reporter for the local *Vieux Carre Courier*.

The resulting piece, 'The mysterious experiments of Dr Heath: in which we wonder who is crazy and who is sane', was a broadside against Heath's work. Published in 1974, it not only told the story of patient B-19 but also claimed that nurses at Charity would hide their patients from Heath's lackeys when they came sniffing round for subjects. Heath attracted further negative publicity in Alan Schefflin and Edward Opton's 1978 book *The Mind Manipulators*.

The most damaging critique, however, came in Elliott Valenstein's 1973 book *Brain Control*. Unlike the others, Valenstein – now professor emeritus of psychology and neuroscience at the University of Michigan – was a member of Heath's own profession. And he argued not that Heath was a monster, but simply a bad scientist.

Valenstein pointed out gently but firmly that because of Heath's lack of controls, his habit of reading what he wanted into the data, and other experimental errors, much of his work was simply invalid. "My criticism of Heath," he says today, "was really that he didn't seem to know how to test his own conclusions for verification. He was always interested in

results that were spectacular – like finding some protein in the brain that would evoke schizophrenia. He'd published papers of that sort but never really looked for alternative explanations, never tested the reliability of his findings, was very willing to rapidly publicise his findings, so that he was quite unreliable."

Some people Valenstein talked to told him that even Heath's vaunted pleasure centre wasn't all it was cracked up to be: "[They] said that many of these patients were just stimulating their own brains because they thought that's what he wanted them to do – it wasn't really a pleasurable experience for them." Heath admitted in print that septal stimulation had different effects on different people – generally serving to amplify rather than create emotions, especially in the case of arousal, and having much less effect on those who were already feeling happy and contented.

Despite the growing controversy, Heath retained his position and prestige – but Tulane was becoming increasingly worried about its reputation. In the early 1970s, donors to fund the electrode studies became harder to come by, as did official approval for procedures. Heath even took a brief sabbatical while the bad publicity died down.

Yet in terms of his ambitions, and his convictions about the brain, nothing of substance changed. Psychiatrist Marilyn Skinner remembers, as a young resident at Tulane, being given the case of a 22-year-old woman: "She was wild, you couldn't get close to her, she was literally scarred – her whole body was a scar, from her own cutting and burning. ... She was going to kill herself, and somebody else too."

Heath decided to carry out a radical surgical procedure – but couldn't get permission to do it in New Orleans. So he found a sympathetic hospital in California, and when the procedure took place, something amazing happened, Skinner says: "They basically severed the connections between the two hemispheres [of the brain]. And I'm not kidding you,

she was a dream after that. She showed warmth, and gratitude – she was able to talk about her feelings, and what happened, and was no longer suicidal or homicidal."

That is the tantalising thing about Heath: sometimes, his wild ideas actually came off.

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Heath retired as chairman of his department in 1980, after 31 years at the helm, although he continued working for some years afterwards. Even before his death in 1999, at the age of 84, his reputation outside Tulane had become tarnished. He was known, if at all, not as the man who was the first to map out the pleasure circuit, or as one of the earliest and most passionate advocates for the biological causation of schizophrenia (now the established orthodoxy), but as a man whose work seemed closer to science fiction than practical medicine.

To some, he was a monster, plain and simple. He used vulnerable patients to hone his theories, to no therapeutic benefit, causing many of them very significant harm. He tested psychoactive drugs on the unwitting.

Harry Bailey, an Australian doctor who briefly worked with Heath on his electrode studies, accused him of picking out African-Americans for his experiments because, as he put it, "it was cheaper to use niggers than cats... they were everywhere and cheap experimental animals". The patients would be wired up and given a little box and "just went around, 'pop, pop, pop', all the time, continuous orgasms". A woman called Claudia Mullen even testified before Congress in 1995 that Heath had, when she came to him as a child patient, engaged in all kinds of unethical practices before handing her over to the custody of the CIA, where she was used as a sex slave. He has been accused of mind control,



of barbarity, of "Nazi science", of using prisoners in Charity, Jackson and elsewhere as his playthings.

Yet his former colleagues almost uniformly tell a very different story. "Other than my parents," says James Eaton, "he was the most formidable mentor and leader and ideal that I had." For John Goethe, another who worked with him at Tulane, "Nobody was more devoted to trying to find a cure for the people he felt medicine had neglected. He was in psychiatry and neurology rather than cardiology and dermatology because he felt 'We're not paying enough attention to these folks.'"

Yes, he was arrogant and temperamental – "It would be easy for him to win a contest to see who could divide a room quickest," says Goethe – but he was also inspirational. In an obituary, fellow Tulane neurologist Leon Weisberg called him "a true visionary... an extraordinary clinician, teacher, administrator, scientist and friend".

How to reconcile these two Bob Heaths? Certainly, it is easy to cast doubt on the wilder allegations. Bailey's quotes come from a long, rambling, drunken speech, decades after the event – and he himself was a genuine monster, whose "deep sleep" therapy, based on the idea that the human brain would be more malleable if the patient were plunged into a barbiturate-induced coma, killed dozens of people. In fact, given New Orleans demographics, African-Americans appear to have been under-represented in Heath's electrode studies rather than the reverse.

As for Claudia Mullen, her social worker and champion, Valerie Wolf, had her licence revoked over claims that she had exploited her clients and encouraged them to believe recovered memories that turned out to be false. Wolf is now dead and Mullen has long been out of the public eye; Alan Schefflin, the Santa Clara law professor (and co-author of *The Mind Manipulators*) who validated her claims of CIA abuse, refused multiple requests for an interview.

Heath may have gone to extremes, but he had many companions in excess. In 1963, a different group of scientists at Tulane started transplanting chimpanzee kidneys into humans. Lobotomies, deep sleep therapy, "insulin shock" – Heath's electrodes were, in comparison, a relatively delicate intervention. He generally used them, he insisted, on incurably sick patients for whom all other treatments had been tried and had failed – although the B-19 case and others suggest that is not entirely true. And while he did map out the "aversive" areas of his patients' brains (including "a site which when stimulated would turn on intense killing rage, instantaneously"), and carry out that experiment with bulbo-capnine on the CIA's behalf, he also claimed to have rejected a request from the CIA to study the brain's pain centre.

Yet this, in an odd way, is precisely what makes Heath so fascinating, and his career so relevant today. He was not a villainous outlier, cackling to himself in a basement, but the respected head of a major university department, someone who was not only in the academic mainstream but had defined, at least for Tulane, what that mainstream was. His excesses, and his flaws, and his failures to accept his limitations, were therefore all the more significant.

Heath's central insight – that schizophrenia was a disease of the brain rather than the mind – has certainly been vindicated, and triumphantly so. Much of his research, for example in mapping the pleasure circuit of the brain or monitoring it during orgasm, was pioneering. Yet his 425 papers have left a remarkably small imprint on the wider field. By the time he retired – and, in truth, long before – it was clear that much of his work had been rendered moot by advances in antipsychotic medication; the idea of there being one single, fixable cause for schizophrenia also ended up being simplistic and overly optimistic.

Scientists are now, again, attempting to use [deep brain stimulation](#) to treat mental illness – such as intractable and crippling

obsessive–compulsive disorder. But a recent profile of one of the leaders in the field, Emad Eskandar, claimed the practice had only begun in 1987. Heath's use of deep brain stimulation 20–30 years earlier has been largely written out of the history of neuroscience.

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To modern eyes, the B-19 episode is the most controversial of Heath's cases – even though there is some pretty stiff competition. But what is striking in the contemporary reports is how few people, in comparison to his other electrode experiments, seem to have raised any objections.

Take Elliott Valenstein's book *Brain Control*. In it, he did criticise the experiment – but for its method, not its motives. His argument was that "orgasmic reorientation" – a behavioural therapy programme based around masturbation – seemed to get equivalent results for much less effort. The basic idea that it was a psychiatrist's duty to "cure" gay people went unquestioned. Homosexuality was, until 1968, formally listed in the diagnostic textbooks as a sociopathic personality disturbance, a fear of the opposite sex that was thought to result – just like schizophrenia – from childhood trauma. It was still listed as a "sexual deviation" until 1973.

Speaking today, Valenstein acknowledges that "the attitude towards homosexuality at the time was very different from what it is now". What was different about Heath's procedure, he says, wasn't that he was trying to "fix" homosexuality – many people, including Heath's mentor Sandor Rado, were doing the same. Heath's work, and other such biological approaches, were notable mostly because they seemed to offer an easier and more lasting solution than long-term therapy.

A few years ago, says James Eaton, he was interviewed about Heath's work for a potential documentary. At the end, he was asked about

Heath's apparent crusade to wipe out homosexuality. "I said: 'What are you talking about? I myself am gay. I've known I've been gay all of my life. Heath knew it too. And out of 44 or 45 fellows or residents, he made me his chief resident, and he trusted me until his death. Now why would he do that? He never once alluded to the fact that I was gay.' And that floored them. It just floored them."

And what about the young man, B-19? Did Heath's "cure" actually work? In the paper he wrote with Charles E Moan, Heath claimed that B-19 – who he identified in contemporary interviews as a male prostitute – had subsequently had a ten-month relationship with a married woman. While he had also returned to homosexual activity, this had only happened twice, "when he needed money and 'hustling' was a quick way to get it when he was out of work". Heath added that "such acting out was not intended to be a replacement for sex with females, which he indicates he is definitely motivated to continue". In an interview in 1972, he went further, claiming that B-19 "has solved many of his personal problems and is leading an actively and exclusively heterosexual life".

Mission accomplished, then? Not quite. While Heath's electrodes may have stirred up arousal temporarily, they didn't actually change the patient's basic nature. "At least at the time I knew [B-19], it was less about whether he was homosexual or heterosexual. He was sort of asexual. He just wasn't that interested," says John Goethe. "It was clear to me... that his life stressors were – some were related to sexual orientation, but most were not." He drifted between jobs, and "was not a happy camper about a lot of things". He adds that it was B-19 who approached Heath for help with his sexuality – rather than having a "cure" imposed on him in exchange for leniency over drugs charges, as suggested by Bill Rushton at the time.

The best place to find the truth about B-19 and Heath's other experiments would be his archives, which are held by his old department

at Tulane. But the university (which is a private institution) refuses to let anyone have access to them, even though researchers have in the past been allowed to view the films of Heath's experiments held by Tulane. While I spoke to several of Heath's former colleagues, those still working at Tulane itself refused to comment. With the assistance of Ken Kramer of PsychSearch.net, who investigates cases of psychiatric malpractice, I was able to track down Moan, Heath's co-author on the B-19 paper, but he refused repeated requests for an interview.

Yet from the available evidence, it is hard to disagree with the judgement of Alan Baumeister, a Louisiana State University psychiatry professor and the leading academic expert on Heath, that the Tulane electrical brain stimulation experiments were "dubious and precarious" not just by today's standards, but by those of the time. "Heath, throughout the history of his work, justified what he was doing on therapeutic grounds," says Baumeister. "He said that it was done for the benefit of the patients. But some of the things he did couldn't conceivably have been done for the benefit of the patient."

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He may not have been a god, but Heath was clearly a man of extraordinary gifts and extraordinary charisma – yet one whose self-belief blinded him to the flaws in his theories and his methods. "He, like many doctors, did not see any ethical problems from what he was doing," says Todd Ochs. "He was trying to help people. And in a way it makes it more sad and also more dangerous – self-righteousness is something that reason doesn't address. ... He thought he was helping gay men, he thought he was helping schizophrenics, and that his research was going to be transformative."

During his long career, Heath made many claims about what stimulating his beloved septal region could do. First he thought it could "wake up"

the brain from a sleep-like state; then that it could be used to compensate for schizophrenics' defective pleasure centres; or to detect and disrupt epileptic fits; or relieve chronic pain.

Even in old age, he was coming up with new ideas, arguing that transplanting septal tissue from one person to another could enhance brain function and ward off the effects of ageing and Alzheimer's: he'd already done it in rats, he told a Tulane colleague in an interview in 1986, and they'd tried it out on squirrel monkeys just the day before.

Yet what Heath had, ultimately, was a procedure in search of a purpose. Like his [patients](#) with their metal boxes, he could do something to the brain – septal stimulation – that was strange and fascinating and enthralling and mysterious. So, like them, he kept doing it, again and again and again.

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Citation: The 'gay cure' experiments that were written out of scientific history (2016, July 5) retrieved 11 May 2024 from <https://medicalxpress.com/news/2016-07-gay-written-scientific-history.html>

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