

The Brain: Mindless Matter

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Brain tissue has the consistency of warm butter, according to Dr. Walter Freeman, who made the observation in 1936 after cutting into the living brain of

a mental patient¹. A wet, gelatinous mass of billions of neurons and trillions of synapses that constitutes the essence of humanity – God, soul, and the ineffable human spirit notwithstanding – our brains

feel like melted butter. Other researchers have even described it as *squishy*; one journalist describes it as “like a slab of strudel”². While scientists and doctors have performed brain surgery for thousands of years, physically treating the brain for conditions of the mind earnestly began in the late 19th century. Dr. Freeman’s fame, or infamy, resulted from his advocacy of the lobotomy as a treatment for mental illness. With decided temerity, Dr. Freeman and his partner, Dr. Watts, took surgical instruments to their patients’ shaved heads, bored holes, and cut into the frontal lobes, with the hope of abating debilitating anxiousness, apprehension, hostilities, and a variety of other symptoms. Sometimes it worked, sometimes it didn’t. Their work coincided historically with that of Sigmund Freud, who, by contrast, popularized psychoanalysis for mental illness, and in the process, made many men afraid to hug their mothers.

While lobotomies have largely gone by the wayside and analysis remains popular, the advent of brain imaging technologies has helped, along with research in genetics, revitalize

Embrace

You know the parlor trick.
Wrap your arms around your own body
and from the back it look like
someone is embracing you,
her hands grasping your shirt,
her fingernails teasing your neck.

From the front it is another story.
You never looked so alone,
your crossed elbows and screwy grin.
You could be waiting for a tailor
to fit you for a straightjacket,
one that would hold you really tight.

Billy Collins (1988)

¹ El-Hai 11

² Kahn

our belief that we can fix mental illness by fixing the brain. Instead of lobotomies, we use drugs that effectively change the constitution of our brains. Sometimes it works, sometimes it doesn't. Cutting into the brain is both a crude and delicate process, and even the bold Dr. Freeman only lobotomized a select type and number of patients, who typically had experienced hospitalization and a long history of distressing symptoms. Drugs offer a simpler, more accessible alternative, and as a result of their pervasiveness, we may have created simpler, more accessible diseases of the mind to fix. A hyperactive child, a depressed woman, an irritable father, a person lacking a vigorous libido ..All of these people can find a prescription drug that promises to make them feel *normal*, which in many cases simply means *good*. Is it acceptable not to feel good? It seems that the line between normal and pathological has shifted in the sand.

Research based on brain imaging technologies has helped shift the line, despite the infancy of the technology and how little is understood of the images that the machines produce. In this type of research, scientists compare brain images of a person with a condition, such as depression, with a "normal" subject's brain, enforcing the idea that the condition is an abnormality. Because a normal brain may appear different than a depressed brain on fMRI or PET images – particularly on the scans published in journal articles and popular culture – the implication is that depression can be corrected by fixing the appropriate coordinate in the brain. Ultimately, pervasive use of brain scans for comparative studies of errant behaviors – such as symptoms associated with attention deficit disorder, schizophrenia, depression, and bipolar disorder – may increase the number of behaviors we consider errant and increase our desire to achieve a physical state of normalcy through drugs.

Unlike how they view other organs, such as the heart, ethical scientists cannot crack open our heads to see a living, human brain function. Ironically, even if they could, the brain might not reveal much to the unaided eye. Its complexities seem to exceed that of the universe, and in fact, might be a universe unto itself. The brain offers us the ultimate mystery. Brain imaging technologies – such as functional magnetic resonance imaging (fMRI), computed axial tomography (CAT or CT) scans, positron emission tomography (PET), and others – are currently the basis for hundreds, perhaps thousands, of major psychiatric research projects. The nature of the research assumes that abnormalities of a behavioral nature are biologic in origin. The brain of a depressed person, therefore, should be different from the brain of a person who is not depressed. Based on this assumption, it seems to follow that a brain *scan* of a depressed person should be different than a brain *scan* of a person who is not depressed. However, researchers do not classify the control as “a person who is not



Walter Freeman working on a lobotomy patient (*Lobotomist*)

depressed,” but rather, as “normal.” Science often sets out to show difference, and despite controversial findings and evidence, that is what it often does. The visual artifacts produced by imaging technologies influence how our culture views mental conditions.

While current radiological brain imaging technologies are a late 20th century development, trying to capture an image of the brain is not. Freeman took photographs and examined cadaver brains and bodies, searching for difference, but could find nothing significant. He stated, “The question often occurred to

me, ‘How is it that a person with such a normal appearing brain can have been mentally sick

for forty or fifty years?'"³. In the 1930s, Freeman worked with Herbert Schoenfeld, a surgeon, to photographically capture images of the brain's ventricular system. An earlier method of ventriculography also used x-ray⁴. In the early 20th century, some scientists used a dangerous procedure called pneumoencephalography, where air replaced the subject's cerebrospinal fluid inside his skull to show the brain more clearly on x-ray. The angiograph followed in the 1920s, which captured images of dyes injected into the bloodstream⁵.

These rudimentary methods precipitated a growing interest in brain imaging. CT scans came into use in the 1970s, around the same time that MRI was in its infant stages of development. PET scanning and fMRI are highly popular brain imaging techniques, coming into wide usage during the mid-1990s. Both technologies essentially measure blood flow to certain areas of the brain. When blood flow is increased to certain areas, those are often called *hot spots*, and shown in bright colors on the images. The bright colors actually have no basis in fact; they are chosen from a palette, based on personal preference or desired effect. To create PET brain scans, a radiologist attaches a radioactive isotope to a molecule, such as glucose. She injects the molecule into the body and watches where it goes. The result is an image of a slice of the brain that reconstructs where the radioactivity is at various points in time. FMRI is popular because it uses a magnetic force instead of radioactivity and requires no injection, causing less anxiety and possible side effects for the patient. In this technology, the MRI machine measures changes in blood flow of the subject, often while he does various activities, such as looking at pictures.

One journalist describes how researchers are using fMRI scans to map the human brain. In describing the technology, she states: "Each computer-generated slice contains a hundred thousand voxels, or 3-D pixels. Combine the information in all the voxels and slices

³ qtd. in El-Hai 68

⁴ El-Hai 87

⁵ Dobbs 26

and you get a complete picture of the brain in action. Your brain – live, on screen”⁶.

However, you don’t exactly get a “complete picture of the brain in action.” Rather, you get an image of a slice or slices reconstructed from an algorithm that shades areas where blood flows to the brain when the scan was underway. Sort of.

In “Fact or Phrenology,” David Dobbs discusses the controversy surrounding use of

These colorful images with captions describe brains that are certifiably smart or depressed or obsessed. They describe brains that are clearly doing something, such as reading words, taking a test, or hallucinating. These brain images make claims on us because they portray *kinds* of brains. As people with, obviously one *or* another kind of brain, we are placed among the categories that the set of images offers. To which category do I belong? What brain type do I have? Or more nervously: Am I normal?

Joseph Dumit (5)

fMRI to study brain function. Essentially, the debate concerns the accuracy of the technology and “its legitimacy in linking complex mental functions to particular brain regions”⁷. He explains that the technique can overlook the networked nature of the brain, and instead, emphasize

blood flow in one particular area. He uses Steven Faux⁸, head of the psychology department at Drake University, to explain: “This is a very gross technique,” says Faux. “It’s like a blurry photo—better than no photo but still blurry, with real limitations that are too often overlooked. It’s very easy to overextend [the value of] this technology”⁹. Faux goes on to say:

The beautiful graphics fMRI produces imply much more precision than there actually is ...It’s really a very gross, if not vague, physiological measurement that people are using to try to pin down some very complex behaviors. And in too many studies the authors way overinterpret the data¹⁰.

⁶ Kahn

⁷ 25-26

⁸ Faux may be suffering from a mental condition caused by his name.

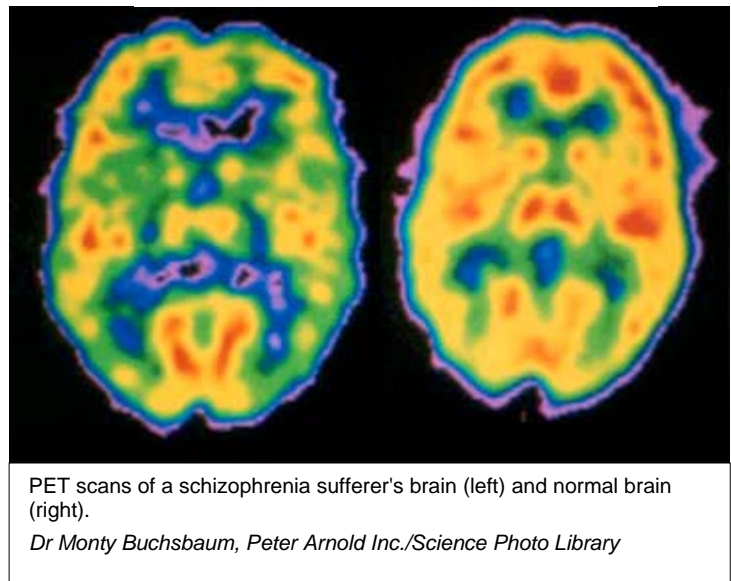
⁹ qtd. in Dobbs 26

¹⁰ qtd. in Dobbs 28

The brightly colored images may affect the way we value the technology, as do the captions that go with the images. If the image is compelling enough, for the reader, it may be the only item he interprets on the page, even if a comprehensive study is provided.

“Images in texts speak through their captions, which constrain their interpretation,” states Joseph Dumit, an anthropologist who has extensively studied the cultural effects of PET brain scans¹¹. See Figure 1, where the original caption plainly contrasts a schizophrenia sufferer’s brain with a “normal” brain. It’s difficult to determine, without additional data,

Figure 1



whether this composite image signifies typical difference, extremes of a study, or simply compares one brain to another. To the casual observer, however, it seems to readily indicate that:

- Schizophrenia sufferers’ brains are different from normal brains; and
- Schizophrenia sufferers are not normal.

It does not reveal whether the normal subject might harbor homicidal feelings about his father, or be a sado-masochist in the bedroom. “The key point for brain imaging is that as the image becomes more simple and iconic, it also becomes more subjective (personally invested in) and universal (generalizable to human nature),” Dumit states¹². Labeling one subject “normal” and one “schizophrenic” certainly oversimplifies the human condition, and

¹¹ 142

¹² 147

shows little about brain function. However, using such scans – even if the images chosen for publication are at the far end of the result spectrum – does serve a purpose for the researcher, in that it shows a difference most easily understood through disparate images. Dumit explains the visual effect of PET brain images:

These images travel easily and are easily made meaningful. Because they are such fluid signifiers, they can serve different agendas and different meanings simultaneously. While representing a single slice of a particular person’s brain blood flow over a short period of time, one scan can also represent the blood flow of a *type of human*, be used to demonstrate the *viability of PET* as a neuroscience technique, and demonstrate the *general significance of basic neuroscience research*¹³.

Another difficulty of using scans is that the brain changes continuously. Creating a single representative brain, or a “normal” brain, for comparison purposes is practically impossible. There are projects in the works worldwide to map the human brain using a large number of subjects, and combining the data. In describing issues associated with developing a large, four-dimensional brain atlas involving a large population – about 7,000 subjects in the initial phase. In describing the development of this brain atlas, researchers state:

Developers of anatomic atlases must first deal with the fact that a potentially infinite number of physical realities must be modeled to obtain an accurate, probabilistic representation of the entire population. On this anatomic representation, features can then be overlaid in much the same way as for earth atlases. In the brain, such features might include, among many others, cytoarchitecture, chemoarchitecture, blood flow distributions, metabolic rates, ligand binding, and behavioral and pathologic correlates. Like earth maps, brain maps can vary in time frames ranging from

¹³ 4

milliseconds (e.g., electrophysiologic events) to minutes (e.g., skill acquisition), years (e.g., development, maturation, aging), or millennia (i.e., evolution).¹⁴

The same researchers point out that “increments in neuroscientific research funding have not kept pace with the growth of the field in terms of the number of investigators or the magnitude of their projects”¹⁵. Because a great number of researchers are interested in this line of study, we will surely see a growing number of studies illustrating how we need more studies comparing *something* to the norm, and likely determining that we need further studies.

Studying the brain and behavior requires a control, a norm. “[A]n important principle about brain function [is] that all our perceptions—indeed, maybe all aspects of our minds—are governed by comparisons and not by absolute values,” states neuroscientist V.S. Ramachandran¹⁶. Normal can either mean what is normal or expected, or it can mean an ideal to which we should conform¹⁷. Standards of normality are based on what is normal in a culture as a whole, rather than a specific individual. If a grown woman, such as Alice Hammatt, whose brain inspired Freeman’s butter analogy, urinates on the floor, stands naked in the window, and experiences anxiety, depression, insomnia, and claustrophobia, and generally causes great distress to her family¹⁸, as she did, it seems justifiable to classify her as abnormal and a candidate for treatment. However, if a 21st century Alice Hammatt functioned well, but felt depressed, she might also receive treatment that alters her physical brain in the form of antidepressants Prozac or Zoloft.

Determining a normal standard might raise enough challenges, but we must also consider those who meet our criteria for normal – and seem to have no outstanding pathologies – but, in fact, have abnormalities. When a research project calls for volunteers,

¹⁴ Mazziotta

¹⁵ Mazziotta

¹⁶ 167

¹⁷ “Norm”

¹⁸ El-Hai 9

researchers may screen with basic questions about mental health; however, they are limited in what they know. A *Newsday* article asserts that scientists are finding that the normal brain is not necessarily normal. “Judy Illes, a senior research scholar at the Stanford Center for Biomedical Ethics, said that she and others have found that 18 percent of healthy volunteers had some kind of brain anomaly. While only 2 percent to 8 percent have required clinical follow-up, these incidental findings have raised concerns among scientists who are using the newest technology to unravel the mysteries of the brain,” according to the article¹⁹. In addition to bringing into question the entire notion of a normal brain, this also leaves researchers to consider what to tell research volunteers about unexpected findings. While a blip in the brain could be serious, it may also be benign but cause the individual a great deal of unnecessary stress and anxiety. The fact remains that the likelihood that any one person has a brain free from disorder seems to be shrinking. We seem to be pushing the normal threshold further and further out of reach, and then trying to reel ourselves back in through the magic of pharmaceuticals.

In “Is Everybody Crazy,” Sharon Begley describes a Harvard psychiatrist who believes that quirky behaviors are actually mild mental illness. He writes of a 6-year-old who sobbed every time his mother left him at school. The mother took a variety of actions, such as staying in the classroom for a few minutes, with no change in the boy’s behavior. Begley states that in the past, a therapist might have evaluated the mother’s overprotectiveness, considered that she had an unhappy marriage that made her focus inordinately on her son, and ultimately determine that the son cried in an attempt to communicate and cooperate with her needs. Begley explains, “But [the psychiatrist] had a different diagnosis. The mother, he concluded, suffered from a biologically based anxiety disorder and should try BuSpar, an anxiety drug. The little boy? Shadow panic disorder.” The psychiatrist prescribed Prozac.

¹⁹ Talan

Even without prescribing drugs, to label individuals with conditions has its own effect. “This labeling is more than a party game (‘He thinks we’re whispering about him? He must have mild schizophrenia),” states Begley. “It has consequences. Doctors who blame their patients’ peculiarities on biologically based mental illness, rather than seeing them as individual responses to life’s circumstances, are quick to prescribe psychoactive drugs.”

Illness, by its nature, deviates from the norm. The naming of a set of emotions or behaviors as a condition has social consequences. In some cases, it could have devastating consequences by creating stereotypes that are difficult to change and considered negative by society. Consider that you are hiring a secretary and have two candidates who do not appear particularly happy. You ask one about it, and he says, “Oh, I’m sad and upset because my dog died last night.” The other states, “I suffer from depression.” All things being equal, who would you hire? It may not make much difference, as it seems so many of us apparently have mental health problems.

The National Institute of Mental Health (NIMH) estimates that about one in five American adults “suffer” from a mental disorder, *suffer* perhaps being a relative term. About 18.8 million American adults have a depressive disorder – about 12.4 million women and 6.4 million men. Bipolar disorder affects around 2.3 million American adults, with an average age in their early 20s. Around 2.2 million Americans have schizophrenia. About 19.1 million American adults between 18 and 54 have an anxiety disorder²⁰. The NIMH also states that the “burden of mental illness on health and productivity in the United States and throughout the world has long been underestimated”²¹. Interestingly, because of “the conquest of infection diseases” and an aging population, “psychiatric and neurological conditions could increase their share of the total global disease burden by almost half, from 10.5 percent of the total

²⁰ “The Numbers Count”

²¹ “Impact of Mental Illness on Society”

burden to almost 15 percent in 2020²². The numbers of people suffering from mental conditions has risen dramatically, as has the number of diseases from which they suffer.

Chronic fatigue syndrome is an example of a relatively new label for feeling extremely exhausted for a sustained period of time. The Chronic Fatigue and Immune Dysfunction Syndrome Association of America (CFIDS) estimates that about 800,000 people in the U.S., suffer from the chronic fatigue and immune dysfunction syndrome (CFIDS), and 90% of patients have not been diagnosed and are not receiving proper medical care for their illness²³.

CFIDS describes CFIDS as follows:

CFIDS is characterized by incapacitating fatigue (experienced as profound exhaustion and extremely poor stamina) and problems with concentration and short-term memory. It is also accompanied by flu-like symptoms such as pain in the joints and muscles, unrefreshing sleep, tender lymph nodes, sore throat and headache. A distinctive characteristic of the illness is post-exertional malaise, a worsening of symptoms following physical or mental exertion occurring within 12-48 hours of the exertion and requiring an extended recovery period.²⁴

What is not certain is how the diagnosis itself affects the outcome of the patient's symptoms. In other words, if a doctor advises a patient that she has CFIDS, will that change her response to the symptoms of fatigue? What about depression as a condition? Depression in response to loss is normal; depression can also be pathological. It's a matter of degree. We can expect a certain level of depression throughout our lives, such as when a parent dies, when we experience financial troubles, and when completion of a major research project by a deadline seems insurmountable. However, when we receive a medical diagnosis of depression, and a

²² "Impact of Mental Illness on Society"

²³ Prevalence"

²⁴ "Symptoms"

recommendation of treatment, it is conceivable that the diagnosis affects the experience of the melancholy.

Age makes a difference in the nature of our brain dysfunctions. A report by an Australian hospital and the University of Sydney states, "The young have a higher incidence of psychiatric disorders, including depression, anxiety, schizophrenia and substance abuse. In contrast, the elderly suffer particularly from neurodegenerative conditions such as dementia or stroke."²⁵ Mental illness is defined by the *The Diagnostic And Statistical Manual Of Mental Disorders* (DSM), first published in 1952, evolving into the current standard, DSM IV, published in 2000.

Scenario

Patient: Doctor, for about a couple of months now, I've been depressed and anxious. I'm not sure it's normal.

Doctor: Depression is a biologically-based condition. You shouldn't feel that it's all in your head, so to speak. Heh heh heh, well maybe it *is* in your head, but I just want to reassure you that it's *really* in your head and not just *in your head*.

Patient: Ok.

Doctor: But, regardless, I don't prescribe anti-depressants willy-nilly. Let me ask you a few questions ... Have you had a change in your sleep patterns, either a decrease or increase in appetite, a hard time concentrating, a restlessness or change in your activity level?

Patient: Yes! You've described me exactly.

Doctor: [Nods knowingly, thinks briefly.] After careful consideration, I'm going to give you a trial prescription of Zoloft, which should alleviate your symptoms. There's no reason for anyone to suffer from depression.

Patient: Thanks a lot. I'll try it. By the way, I don't know if it matters to you, but my husband just died and my son's been arrested for drug trafficking.

Doctor: We'll get you back to normal ASAP. Depression can be cured.

In "Abnormal as Norm," Steve Ayan and Iris Calliess point out that even the DSM IV fails to take into account cultural differences. What is normal in one culture may constitute mental illness in another. They state that "cultural norms and values determine which behaviors are socially acceptable."

For example, states Ayan and Calliess,

Certain men in Malaysia are driven by a fear that their genitals could retract up into their bodies. They even believe that the perceived condition, called *koro*, can be deadly. To prevent it, the men apply weights to their penises or take other extreme

²⁵ "Impact of brain related illnesses"

measures. The fear, and the uncomfortable antidote, is not common, yet is accepted in this longstanding culture. But in a Western country, an adult male who acted on such a belief would certainly be labeled as emotionally disturbed.

Many cultures find that America's focus on thinness is a sort of personality disorder, and one that causes women to deprive themselves of food²⁶.

Fortunately, we have drugs to rescue us from the inadequacies of our minds. "After touch — which has been banned from the psychotherapeutic encounter — the most natural way to comfort someone in distress is to give that person something to swallow," states David Cohen, professor in the School of Social Work, College of Health and Urban Affairs at Florida International University in Miami²⁷. The pharmaceutical industry is more than willing to help us out. Money makes the drugs pour freely. A recent Associated Press report states that Americans take more prescription and over-the-counter drugs than any other country. "About 130 Americans ..swallow, inject, inhale, infuse, spray, and pat on prescribed medication every month, the U.S. Centers for Disease Control indicates. In fact, Americans buy much more medicine – for physical and mental symptoms – per person than residents of any other country in the world"²⁸. The consumption of drugs has increased over the past decade, upping the number of prescriptions by two-thirds to 3.5 billion yearly, according to IMS Health, a pharmaceutical consulting company²⁹. Americans take even more non-prescription drugs. Dr. Marcia Angell, former editor of the *New England Journal of Medicine* and author of *The Truth About Drug Companies* states, "What the drug companies are doing now is

²⁶ Ayan 12

²⁷ Cohen is also on the Alliance for Human Research Protection's board of directors

²⁸ "Americans buy much more medicine than any other country"

²⁹ "Americans buy much more medicine than any other country"

promoting drugs for long-term use to essentially healthy people. Why? Because it's the biggest market"³⁰.

A report by the Washington, DC-based National Institute for Health Care Management states that drug companies spent \$1.8 billion on direct-to-consumer advertising in 1999, up 38.5 percent from the \$1.3 billion spent in 1998 and 33 times the \$55 million spent in 1991. Television ads accounted \$1.1 billion of the expenditure, up 70 percent from 1998³¹. The report further states that prescription drugs advertised directly to consumers are now the largest and fastest selling medicines. A more recent report estimates that drug sales rose an average of 11 percent over the last five years and that spending for consumer ads has risen to about \$4 billion in 2004 alone³². According to a survey in 2004 by *Health Affairs*, a health policies journal, physicians prescribed a drug advertised directly to consumers 39 percent of the time when patients asked specifically for that drug, but they were as likely to recommend a lifestyle change to treat a medical condition³³.

The pharmaceutical companies' impact on the culture of drug use for mental illness is overwhelming and impossible to fully comprehend. Not only that, it's insidious. In one small example, the National Alliance for the Mentally Ill (NAMI) is funded by many pharmaceutical companies (though Internet users have to search hard to that information on the organization's Web site) which may influence how funds raised are spent. It's drug money. While we have historically used drugs to some degree in treating mental *illness*, we now use drugs habitually to treat mental *conditions* and *states of mind*. Cohen states:

In everyday discourse, the word 'treatment' is synonymous with 'medication,' because the place of psychotropic or psychiatric medication in the mental health system is

³⁰ qtd. in "Americans buy much more medicine than any other country"

³¹ "Prescription Drugs and Mass Media Advertising"

³² "Americans buy much more medicine than any other country"

³³ "Drug Advertising Leading to New Treatments"

pivotal ...In the 1980s, with the advent of Prozac (floxetine), biological psychiatry was finally consecrated as the reigning school of thought in mental health.

Cohen states that despite our increasing reliance on pharmaceuticals to treat mental conditions, we have seen no improvements in the “incidence, prevalence, relapse rate, duration, or long-term outcome of *any* condition routinely treated with psychotropics, such as depression and schizophrenia.” He points out that, “On the contrary, despair, distress, and dysfunction are regularly announced to be increasing (and untreated) in the affluent West and throughout the world,” according to the WHO Mental Health Survey Consortium, 2004. Cohen cites research showing that the pharmaceutical industry is the world’s most profitable industry, and that psychotropic drugs rank second or third as the most prescribed pharmaceuticals. One antidepressant, Zyprexa (olanzapine), generated \$13.5 billion in sales after six years on the market – over 20 times its initial investment³⁴.

Children taking prescription drugs for behavioral issues is a hotly debated topic, but despite the outcries, more children take Ritalin and related psychotropics than ever before. According to the National Institute on Drug Abuse (NIDA), methylphenidate (Ritalin) is usually prescribed to children who have symptoms of ADHD. ADHD is characterized by a “persistent pattern of abnormally high levels of activity, impulsivity, and/or inattention that is more frequently displayed and more severe than is typically observed in individuals with comparable levels of development ...It has been estimated that 3-7 percent of school-age children have ADHD”³⁵. Other studies estimate that over 10% of all children have ADHD³⁶. The NIDA, which is part of the U.S. Department of Health and Human Services, states that the drug is a central nervous system stimulant, and has “a notably calming and ‘focusing’ effect

³⁴ Cohen

³⁵ “NIDA Infacts: Methylphenidate (Ritalin)

³⁶ Wouldn’t that make it almost *normal*?

on those with ADHD, particularly children³⁷. In a footnote, Cohen points out that in some states, rules for publicly financed federal block (Medicaid) grants order that funds for social workers can only be used if children first receive drugs. Using drugs certainly might control some behaviors, but at this time, they are poorly understood and driven at the root by money over well-being. We simply don't know what the drugs are doing to our brains, and the drug companies lack the inclination to clarify this point.

The FDA recently demanded that Bayer AG, GlaxoSmithKline, and Schering-Plough Corp., pull its 15-second ad for Levitra®, an anti-impotence pill³⁸, for a variety of reasons, including vagueness and a suggestion that the drug is better than comparable drugs, which is not backed by clinical data. According to a news story, the “ad shows a couple flirting and the woman saying, ‘In the mood for something different? How about Levitra?’”³⁹ Regardless of the reprimand, Levitra and its competition still thrive on the market.

Cohen believes that drugs are popular because people like them, and biological psychiatry justifies them. In a long, but worthwhile statement, Cohen says:

Using drugs to alter consciousness, to ease pain, to induce sleep or maintain wakefulness are ancient universal practices. Biological psychiatry exploits these ordinary desires with a medical/scientific rhetoric, currently that of the ‘biochemical imbalance.’ People hear, read, and are taught that psychotropic drugs are prescribed for them because their brain functioning is defective. Thus, laypersons and professionals come to believe and repeat that hopelessness and depression result from inadequate serotonin neurotransmission which is remedied by serotonin reuptake inhibitors (Johnson, 1999), or that restlessness and inattention in millions of American

³⁷ “NIDA Infofacts: Methylphenidate (Ritalin)

³⁸ While it's often referred to as an “impotence pill,” I don't consider that strictly accurate. As such, it wouldn't sell very well.

³⁹ Ryerson-Cruz

school children result from shrinkage of the frontal lobes and that stimulants 'help brains grow' (Kurth, 2002). The reality is of course more complex: people experiencing psychological distress take drugs because they want to, or because others want them to, or because alternatives to drugs are presently expensive, timeconsuming, demanding, and less easily available.

Who cares? Maybe it's all pointless. It seems that the idea of an abnormal brain is superceding that of a sick mind, one that we will lose to biological determinism. Stephen Pinker states:

One fear of determinism is a gaping existential anxiety: that deep down we are not in control of our own choices. All our brooding and agonizing over the right thing to do is pointless, it would seem because everything has already been preordained by the state of our brains ...The experience of choosing ...is a real neural process, with the obvious function of selecting behavior according to its foreseeable consequences. It responds to information from the senses, including the exhortations of other people. You cannot step outside it or let it go on without you because it *is* you⁴⁰.

Pinker states that the notion of free will is closely tied with the notion of responsibility, and that biology is thought to threaten both. Ramachandran suggests that, in contrast with the idea of one self, there is "another being inside you that goes about his or her business without your knowledge or awareness." Not only one, but actually many beings inhabit our brains. He states that "a single 'I' or 'self' inhabiting your brain may be simply an illusion"⁴¹.

Based on experiments involving mirrors, tables, and rubber hands, Ramachandran questions the idea of *self*. He states:

⁴⁰ 174-175

⁴¹ 84

For your entire life, you've been walking around assuming that your 'self' is anchored to a single body that remains stable and permanent at least until death. Indeed the 'loyalty' of your self to your own body is so axiomatic that you never even pause to think about it, let alone question it. Yet these experiments suggest the exact opposite—that your body image, despite all its appearance of durability, is an entirely transitory internal construct that can be profoundly modified with just a few simple tricks. It is merely a shell that you've temporarily created for successfully passing on your genes to your offspring⁴².

To ordain the future in advance in this way, man must first have learned to distinguish necessary events from chance ones, to think causally, to see and anticipate distant eventualities as if they belonged to the present, to decide with certainty what is the goal and what the means to it, and in general be able to calculate and compute. Man himself must first of all have become *calculable, regular, necessary*, even in his own image of himself, if he is to be able to stand security for *his own future*, which is one what one who promises does!

Nietzsche (58)

Brain imaging technologies may be something else that we pass along to our offspring, along with our desire to break through the wall of our skull, dig into the recesses of our mind via the brain, label our inadequacies and abnormalities, and fix them with a brightly colored pill.

⁴² 61-62

Works Cited

- "Americans buy much more medicine than any other country." Associated Press. *Daytona Beach News-Journal Online*. 17 Apr. 2005. Retrieved 17 Apr. 2005 <www.news-journalonline.com>.
- Ayan, Steve and Iris Calliess. "Abnormal as Norm." *Scientific American Mind*. 16.1 (2005): 12-13.
- Begley, Sharon. "Is Everybody Crazy?" *Newsweek*. 26 Jan. 1998.
- Buchsbaum, Monty. Pet brain scans. Science Photo Library. Science Museum, London. Retrieved 17 Apr. 2005 <<http://www.sciencemuseum.org.uk/exhibitions/brain/49.asp>>.
- Cohen, David. "Needed: Critical Thinking About Psychiatric Medications." Keynote address, 4th *International Conference on Social Work in Health and Mental Health*. Alliance for Human Research Protection. May 2004. Retrieved 15 Apr. 2005 <<http://www.ahrp.org/about/CohenPsychMed0504.pdf>>.
- Collins, Billy. "Embrace." *Literature: An Introduction to Fiction, Poetry, and Drama, 9th edition*. Eds. X.J. Kennedy and Dana Gioiam. Pearson Longman: New York, 2005. 805.
- Dobbs, David. "Fact of Phrenology?" *Scientific American Mind*. 16.1 (2005): 24-31.
- "Drug Advertising Leading to New Treatments, Lifestyle Changes In Addition to Prescriptions for Advertised Pharmaceuticals." *Health Affairs*. Press release. 28 Apr. 2004. Retrieved 17 Apr. 2005 <<http://www.healthaffairs.org/press/marapr0410.htm>>.
- Dumit, Joseph. *Picturing Personhood: Brain Scans and Biomedical Identity*. Princeton University Press: Princeton, New Jersey, 2004.
- El-Hai, Jack. *The Lobotomist: A Maverick Medical Genius and His Tragic Quest to Rid the World of Mental Illness*. Hoboken, New Jersey: John Wiley & Sons Inc., 2005.
- "Impact of brain related illnesses. The Brain Dynamics Centre, Westmead Hospital & University of Sydney. Retrieved 17 Apr. 05 <<http://www.brain-dynamics.net/overview/impact.html>>.
- "Impact of Mental Illness on Society." National Institute of Mental Health, U.S. Department of Health and Human Services. 2001. Retrieved 17 Apr. 2005
- "An Interview with the Author." The Lobotomist Web site. 2005. Retrieved 17 Apr. 2005 <<http://lobotomist.com/interview.htm>>.
- Kahn, Jennifer. "Let's Make Your Head Interactive." *Wired*. 9 Aug. 2001. Retrieved 19 Apr. 2005 <http://www.wired.com/wired/archive/9.08/brain_pr.html>.
- Mazziotta, John, et al. "A Four-Dimensional Probabilistic Atlas of the Human Brain." American Medical Informatics Association. Sept./Oct. 2001. Retrieved 16 Apr. 2005 <<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=131040>>.

- "NIDA InfoFacts: Methylphenidate (Ritalin)." National Institute on Drug Abuse, U.S. Department of Health and Human Services. Revised Mar. 2005. Retrieved 17 Apr. 2005 <<http://www.nida.nih.gov/Infofacts/Ritalin.html>>.
- Nietzsche, Friedrich. *On the Genealogy of Morals and Ecce Homo*. Trans. Walter Kaufmann and R.J. Hollingdale. New York: Vintage Books. 1989.
- "Norm." *The Harper Dictionary of Modern Thought*. Harper & Row: New York, 1977. 429.
- "Numbers Count: Mental Disorders in America." National Institute of Mental Health, U.S. Department of Health and Human Services. 2001. Retrieved 17 Apr. 2005 <<http://www.nimh.nih.gov/publicat/numbers.cfm?output+print>>.
- "Prescription Drugs and Mass Media Advertising." National Institute for Health Care Management. Research Brief. Sept. 2000. Retrieved 16 Apr. 2005 <<http://www.nihcm.org/DTCbrief.pdf>>.
- "Prevalence." CFIDS Association of America. Retrieved 17 Apr. 2005 <<http://www.cfids.org/about-cfids/prevalence-study.asp>>.
- Ramachandran, V.S., and Sandra Blakeslee. *Phantoms in the Brain*. New York: HarperCollins Publishers Inc., 1998.
- Ryerson-Cruz, Geraldine. "FDA pulls plug on Levitra TV ad that lacks vital information." Bloomberg News. North Jersey.com. 17 Apr. 2005. Retrieved 17 Apr. 2005 <<http://www.northjersey.com/print.php?qstr+ZmdiZWw3Zjd2cWVIRUV5eTY20DA10T>>.
- "Symptoms." CFIDS Association of America. Retrieved 17 Apr. 2005 <<http://www.cfids.org/about-cfids/symptoms.asp>>.
- "Two-thirds foster care children in Mass on psych drugs_Globe." Alliance for Human Research Protection. 11 Aug. 2004. Retrieved 17 Apr. 2005 <<http://www.ahrp.org/infomail/04/08/11.php>>.

