Unit 6: Mind

a. action of thinking, or occurrence of a thought;
b. the organ of the human brain.

(1) Is it possible to understand the human mind and brain?
(2) Science, power, and control.
How To Study the Brain?

Image from an fMRI machine removed due to copyright restrictions.

How To Control the Brain?

Image from an EEG removed due to copyright restrictions.
Traditional Knowledge of Psychoactive Drugs

- Tobacco
- Coca
- Poppy
- Peyote
- Marijuana...
Psychoactive Substances

Brain as a Chemical Organ?
Bayer Aspirin (1899):
From Willow Trees
to Acetylsalicylic Acid

Bayer Aspirin (1899):
From Willow Trees
to Acetylsalicylic Acid
Diacectylmorphine (1897): Heroin
- **Barbiturates**
  - Isolated 1864
  - Sedative effects 1903

- **Amphetamines**
  - Isolated 1887
  - Stimulant effects 1930s
Drug Policy:
Safety?
Crime?
Pleasure?
Asocial?

Photo of law enforcement officers with seized cocaine removed due to copyright restrictions.

COCA-COLA SYRUP AND EXTRACT.
For Soda Water and other Carbonated Beverages.

This "INTELLECTUAL BEVERAGE" and Temperance Drink contains the valuable Tonic and Nerve Stimulant properties of the Coca plant and Cola (or Kola) nuts, and makes not only a delicious, exhilarating, refreshing and invigorating Beverage, (dispensed from the soda water fountain or in other carbonated beverages), but a valuable Brain Tonic, and a cure for all nervous affections — SICK HEAD-ACHE, NEURALGIA, Hysteria, Melancholy, &c.

The peculiar flavor of COCA-COLA delights every palate; it is dispensed from the soda fountain in same manner as any of the fruit syrups.

J. S. Pemberton, Chemist, Solo Proprietor, Atlanta, Ga.

COCAINE TOOTHACHE DROPS
Instantaneous Cure!
PRICE 15 CENTS.
Prepared by the LLOYD MANUFACTURING CO.
219 HUDSON AVE., ALBANY, N. Y.
For sale by all Druggists.
(Registered March 1886.)
Controlling Mental Illness: Psychotherapy?
Psychiatry of Everyday Life

Front cover of “The New Yorker,” May 23, 2005, removed due to copyright restrictions.
State Lunatic Asylum,
Danvers, Massachusetts
1878-1992

Photos of the State Lunatic Asylum in Danvers, Massachusetts and a female patient removed due to copyright restrictions.
Desperation and Therapeutic Experimentation

- Hydrotherapy
- Malaria Fever Therapy
- Insulin Coma Therapy
- Electroconvulsive Therapy
- Psychosurgery
Egas Moniz

Prefrontal lobotomy
12 November 1935
Transorbital Lobotomy

“Human Salvage”

Therapeutic Niche

Illustration on how to perform a transorbital lobotomy removed due to copyright restrictions.

Image of “Last Resort Psychosurgery and the Limits of Medicine,” Jack D. Pressman, removed due to copyright restrictions.

Photograph of a patient receiving a transorbital lobotomy removed due to copyright restrictions.
1950s: Rapid Advances in Psychopharmacology

Advertisements for Thorazine, Valium, and Tofranil (1950s) removed due to copyright restrictions.
Deinstitutionalization

- 1955: 558,239 in asylums of 164M: 340/100,000
- 1994: 71,619 in hospitals of 260M: 28/100,000
- 92% reduction: 763,391 people out of hospitals in 1994 who would have been in hospitals in 1955

Graph displaying the number of inpatients housed in asylums and hospitals between 1950 and 1995 removed due to copyright restrictions. In 1955 the first antipsychotic drugs were introduced. There was a gradual decline in patients until 1965 when Medicaid and Medicare were enacted, at which point there was a steep decline. In the mid-80s, the decline of patients slowed down,
Routinization of Psychopharmacology

Two covers from “Time” removed due to copyright restrictions. One included the cover story “Are We Giving Kids Too Many Drugs” and the other had “Attention Deficit Disorder Its not just kids who suffer from it.”
Direct to Consumer Advertising

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If you’re struggling with depression, a helping hand.

Introducing the Cymbalta Promise program. Try Cymbalta for up to 60 days. If you and your doctor are not satisfied, you’ll get your money back. Talk to your doctor and visit www.cymbaltapromise.com.

Restrictions apply; see terms and conditions below.

Important Safety Information About Cymbalta

Antidepressants can increase suicidal thoughts and behaviors in children, teens, and young adults. Suicide is a known risk of depression and some other psychiatric disorders. Call your doctor right away if you have new or worsening depression symptoms, unusual changes in behavior, or thoughts of suicide. Be especially observant within the first few months of treatment or after a change in dose. Approved only for adults 18 and over.

Important Safety Information (continued)

• About your alcohol use
• About all your medicines, including those for migraines, to address a potentially life-threatening condition. Symptoms may include high fever, confusion, and stiff muscles
• If you are taking NSAID pain relievers, aspirin, or blood thinners. Use with Cymbalta may increase bleeding risk
• Before stopping Cymbalta or changing your dose
• If you experience dizziness or fainting while standing up

Cymbalta® (duloxetine HCl) is not for everyone. Do not take Cymbalta if you:
• Have recently taken a type of antidepressant called a Monoamine Oxidase Inhibitor (MAOI) or Mellaril® (thioridazine)
• Have uncontrolled narrow-angle glaucoma (increased eye pressure)

Talk with your healthcare provider:
• About your medical conditions, including kidney or liver problems, glaucoma, diabetes, seizures, or if you have bipolar disorder. Cymbalta may worsen a type of glaucoma or diabetes
• If you have itching, right upper belly pain, dark urine, yellow skin/eyes or unexplained flu-like symptoms while taking Cymbalta, which may be signs of liver problems. Severe liver problems, sometimes fatal, have been reported

Other safety information about Cymbalta:
Cymbalta may cause sleepiness and dizziness. Until you know how Cymbalta affects you, you should not drive a car or operate hazardous machinery.

See back page for additional information for patients about Cymbalta, including boxed warning.

Terms and Conditions: Reimbursement offered for up to 60 days of Cymbalta therapy to a maximum of $700. Prescriptions for more than two capsules per day are not eligible for reimbursement. Limit one reimbursement per person. Offer void where prohibited by law. Valid only in the United States for US residents. Offer not valid if your prescription claims for Cymbalta are reimbursed, in whole or in part, by (1) any governmental program, including, without limitation, Medicare, Medicaid, or any other federal/state program, or (2) any third-party payer in the state of Massachusetts. By accepting this offer, you agree to notify your insurance carrier of reimbursement if required to do so by law or under any terms of coverage. Additional exclusions may apply and this offer may be terminated, revoked, or amended by Lilly USA, LLC at any time without notice. Cymbalta® and the Cymbalta Logo are trademarks of Eli Lilly and Company.

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month* since I took my schizophrenia medicine, INVEGA® SUSTENNA®

*Once monthly after starting doses.

IMPORTANT SAFETY INFORMATION

INVEGA® SUSTENNA® (paliperidone palmitate) is used for the treatment of schizophrenia.

INVEGA® SUSTENNA® is not approved for the treatment of dementia-related psychosis in elderly patients. Elderly patients who were given oral antipsychotics like INVEGA® SUSTENNA® in clinical studies for psychosis caused by dementia (memory problems) had a higher risk of death.

- Neuritis or Malignant Syndrome (NMS) is a rare, but serious side effect that can be fatal and has been reported with INVEGA® SUSTENNA® and similar medicines. Call your doctor right away if you develop symptoms such as high fever, rigidity, shaking, confusion, sweating more than usual, increased need for fluids or blood pressure, or muscle pain or weakness. Treatment should be stopped if you are being treated for NMS.

- Tardive Dyskinesia (TD) is a rare, but serious and sometimes permanent side effect reported with INVEGA® SUSTENNA® and similar medicines. Call your doctor right away if you start to develop bulging or jerking movements that you cannot control in your face, tongue, or other parts of your body. The risk of developing TD and the chance that it will become permanent is thought to increase with the length of therapy and the total dose received. This condition can also develop if it is short period treatment at low doses, but this is uncommon. There is no known treatment for TD, but it may go away partially or completely if the medication is stopped.

- One risk of INVEGA® SUSTENNA® is that it may change your heart rhythm. This effect is potentially serious. You should talk to your doctor about any current or past heart problems. Because these problems could mean your heart is pumping blood less efficiently or it could mean you have a heart rhythm abnormality, contact your doctor immediately if you feel faint or have a change in the way that your heart beats (palpitations).

- High blood sugar and diabetes have been reported with INVEGA® SUSTENNA® and similar medicines. If you already have diabetes or have risk factors such as being overweight or a family history of diabetes, blood sugar levels should be done at the beginning and during the treatment. The complications of diabetes can be serious and even life-threatening. Call your doctor if you develop signs of high blood sugar or diabetes, such as being thirsty all the time, having to urinate or pass urine more often than usual, feeling weak or hungry.

- Weight gain has been observed with INVEGA® SUSTENNA® and other typical antipsychotic medications. If you notice that you are gaining weight, please notify your doctor.

- Some people may feel faint, dizzy, or may pass out when they stand up or sit up suddenly. Be careful not to get up too quickly. It may help if you get up slowly and sit on the edge of the bed or chair for a few minutes before you stand up. These symptoms may decrease or go away after your body becomes used to the medicine.

- INVEGA® SUSTENNA® and similar medicines have been associated with decreases in the counts of white cells in circulating blood. If you have a history of low white cell counts or have unexplained fever or infection, then please contact your doctor right away.

- INVEGA® SUSTENNA® and similar medicines can raise the blood levels of a hormone called prolactin, and blood levels of prolactin remain high with continued use. This may result in some side effects including missed menstrual periods, leakage of milk from the breasts, development of breasts in men, or problems with erection.

- If you have a prolonged or painful erection lasting more than 4 hours, seek immediate medical help to avoid long-term injury.

- Call your doctor right away if you start thinking about suicide or wanting to hurt yourself.

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Limits on Cigarettes,
Seeking Other Outlets

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ONE SIZE SHOULD NEVER FIT ALL

WARNING: Smokeless tobacco is addictive.
Most Profitable Medications

Graph of 2009 sales removed due to copyright restrictions.

See: http://www.pharmacytimes.com/media/pdf/PHTM_35.pdf
Photos of Diet Coke, Red Bull, Coffee, NoDoz, Provigil, and Ritalin removed due to copyright restrictions.

Caffeine -- Stimulants?
Neuro Enhancement?

Chronic psychoses
Unable or unwilling to get treatment
Homeless or marginal housing options
Isolation, exposure, victims of crime
Untreated medical disease, reduced life expectancy

**Psychiatric Emergency Service**

Do the Drugs Work Well? Not in all (most?) cases...

Photo of a Cambridge Health Alliance building removed due to copyright restrictions.
Dystopian Visions: Soma

Image of “Brave New World,” Aldous Huxley, removed due to copyright restrictions.
Drugs and Imperialism: The British Opium Trade
“growing up as a Negro in America may produce distortions or impairments in the capacity to participate in the surrounding culture which will facilitate the development of schizophrenic types of behavior…”

Raskin, Crook, and Herman (1970): “blacks” with schizophrenia rated higher than “whites” on a set of hostility variables due to delusional beliefs that “their civil rights were being compromised or violated.”
General William Donovan (1942)
Office of Strategic Services
Interrogation Drugs
U.S. Navy
Project Chatter (1947)

Mescaline for Interrogations
October 1, 1945

IMMEDIATE

RELEASE

OUTSTANDING GERMAN SCIENTISTS
BEING BROUGHT TO U.S.

The Secretary of War has approved a project whereby certain understanding German scientists and technicians are being brought to this country to ensure that we take full advantage of those significant developments which are deemed vital to our national security.

Interrogation and examination of documents, equipments and facilities in the aggregate are but one means of exploiting German progress in science and technology. In order that this country may benefit fully from this resource a number of carefully selected scientists and technologists are being brought to the United States on a voluntary basis. These individuals have been chosen from those fields where German progress is of significant importance to us and in which these specialist have played a dominant role.

Throughout their temporary stay in the United States these German scientists and technical experts will be under the supervision of the War Department but will be utilized for appropriate military projects of the Army and Navy.

END

DISTRIBUTION: AO, AF, D, DA, DA, D, 4:30 P.M.
Operation Bluebird
Operation Artichoke
ESP, Seances
Search for psychoactive drugs
Cocaine, LSD
Albert Hofmann, Sandoz Laboratories
Lysergic Acid Diethylamide (1938)
Psychoactive effects: 1943
“There is no question that drugs are already on hand (and new ones are being produced) that can destroy integrity and make indiscreet the most dependable individual.”

-- CIA, c. 1951
Interrogation

Render agents useless to enemy interrogation

Train agents to recognize effects

“Psychochemical Warfare”

William Creasy,
Army Chemical Corps

“warfare is never pleasant”
Allen Dulles (1953)
Brian as a “malleable tool”

Project MKULTRA

Newspaper article "CIA Infiltrated 17 Area Groups, Gave Out LSD" removed due to copyright restrictions.
Website about Operation Midnight Clmax removed due to copyright restrictions.
Defense Advanced Research Project Agency

“DARPA is really about The Brain.”

-- Amy Kruse, DARPAtech, 2005
From National Security to Consumerism

“Oxytocin Increases Advertising’s Influence: Hormone Heightened Sensitivity to Public Service Announcements” from Science Daily removed due to copyright restrictions.

Lie Detectors?

The Polygraph Test

Photo of a polygraph test being administered removed due to copyright restrictions.

Photo by puckrockscience on Flickr.
Image from No Lie MRI removed due to copyright restrictions. See: http://www.noliemri.com
Article “Brain Scan Lie-Detection Deemed Far From Ready For Courtroom,” Alexis Medriga, removed due to copyright restrictions.
Website for Berenson-Allen Center for Noninvasive Brain Stimulation removed due to copyright restrictions.
See: http://www.tmslab.org
Transcranial Magnetic Stimulation

- Treat mental illness
- Enhance mood, pleasure
- Enhance studying?
- Remove memories?
- Control behavior?
Implants and Virtual Realities

What is possible vs. what is science fiction?
What are possible good uses, what are likely abuses?