Defining the Mind:

The struggle for legitimacy in psychology and psychiatry during the 1970s.

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The Game

This game highlights the intellectual conflicts that changed American psychiatry and psychology in the early part of the 1970s. It might seem a little odd, in reacting game, to be exploring relatively recent events. While there will be no executions, ostracisms or civil wars in this game, the intellectual stakes are no less high. What you know of Psychiatry and Psychology today—the social significance of the APA's Diagnostic and Statistical Manual (DSM), the use of psychotropic drugs for 'everyday' life (such as Ritalin and Adderall), and the theoretically pluralistic basis of Psychology departments—originate in this time period, in this conflict.

The game, however, does contain a significant misnomer: in reality there are two distinct associations named 'APA.' The American Psychiatric Association, which is composed of Medical Doctors who practice Psychiatry, maintains the DSM. The American Psychological Association, which is composed of academics (PhDs) who study the mind in a variety of ways, does not. In this game, we have conflated these two distinct associations. If you are interested in studying these events in closer detail, most characters with MDs are members of the American Psychiatric Association, while characters with PhDs are members of the American Psychological Association. For the most part, events with which a character interacts occurred under the umbrella of their respective organizations.

During the course of this game, you will be the APA. You will be responsible for putting on annual conferences, where the nation's psychiatrists and psychologists meet to share their research and conduct association business. In 'real time', a single conference takes 1 week. Each weekend of real time then, represents an entire year in game play time. According to your specific role, you may be presenting papers, participating in a symposium, serving on one of these committees, or even running for one.

Scheduling each conference is the responsibility of the conference committee. The schedule for the first annual conference is already set: you can review it on p. 30 . Pay careful attention to the schedule of submission and review detailed by the conference committee. If your role sheet requires that you present your research at the conference, you must get your proposal to the conference committee on time. There is a detailed description of the form required for proposals provided under 'Call for Papers and Symposia' on p. 22.

Introduction to Academic Conferences, 1971

Your cab pulls up in front of the Shoreham hotel in Rock Creek Park, a particularly tranquil part of the chaos that is Washington D.C. You nervously check the entrance to the hotel. It's clear. This year, there are no throngs of protesters bent on face-to-face confrontation.

They must be down at the mall participating in the massive anti-war protest. The radio reported an estimated crowd of at least 50,000. And that's before the 10,000 National Guardsmen were called into try to open the flow of traffic.

The story was not the same last year, in San Francisco.

When you arrived at the hotel last year, the entrance was completely blocked by an angry crowd of gay

rights activists. Individuals in the crowd personally confronting—non-violently but aggressively—any member of the APA who appeared. The activists called this 'Zapping.' You found it terrifying.

There are rumors that the FBI was in attendance last year, and it is almost certain they are here now. The conference was almost shut down. The Washington Post even covered the event:

> *The Washington Post* May 14th 1970 -- The gay liberation and their women allies out-shrieked the head shrinkers today and took over an American Psychiatric Association session on sex. Before the morning was over the 500 psychiatrists who gathered to hear scientific studies on sexual problems demonstrated that they were just as prone to anti-social behaviour as anyone else. 'This lack of discipline is disgusting', said Dr Leo Alexander, a psychiatrist at the meeting. Then he diagnosed the problem of one of the lesbian protesters: 'She's a paranoid fool,' the doctor said, 'and a stupid bitch.'[1]

The conference was a circus. Young men dressed in flamboyant gowns stormed through the hallways. Sessions were disrupted by guerrilla theater. In one, an activist named Frank Kameny grabbed the microphone and shouted "Psychiatry is the enemy incarnate. Psychiatry has waged a relentless war of extermination against us. You may take this as a declaration of war against you."

It all culminated in a session featuring Irving Bieber, author of the 1962 study on homosexuality published in his book *Homosexuality*.

According to eye witnesses,[2] a protester interrupted Bieber almost before he started with the claim that "I've read your book Dr. Bieber, and if that book talked about black people the way it talks about homosexuals, you'd be drawn and quartered, and you'd deserve it!"

Bieber tried to respond by claiming "I never said homosexuals were sick—what I said was that they had displaced sexual adjustment."

"That's the same thing, *motherfucker*!" yelled another.

It was a watershed moment.

Earlier this year, a meeting of the New York branch of the APA, a paper by Charles Socarides was interrupted by a handful of gay activists.

The long-rumored shadow organization of homosexual psychiatrists called the 'Gay-PA' is no longer in doubt. The highlight of this year's program promises to be a symposium titled "Psychiatry: Friend or Foe to Homosexuals: A Dialogue." The panel includes Dr. Evelyn Hooker, one of the participants in last year's show down and the mysterious 'Dr. H. Anonymous,' who claims to be both a licensed psychiatrist and homosexual.

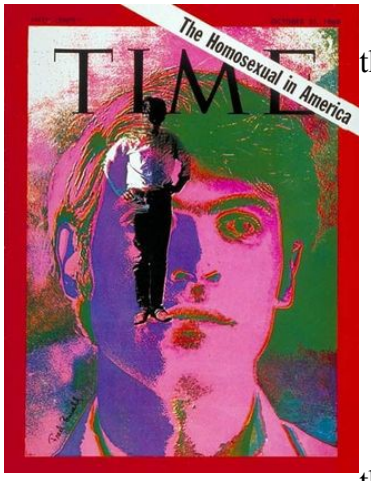
Everyone knows that a mentally ill person cannot practice psychiatry. And homosexuality is a mental illness. This Dr. H. Anonymous, if he or she is telling the truth, is risking his or her license. But yet there must be more. We all know, ever since Kinsey's famous study, that about 10% of the population identifies as primarily homosexual, while a significantly larger percentage have engaged in homosexual activity. And ever since Hooker's paper in 1956, we know that most of this population are psychologically normal. Given the numbers attending this meeting, Dr. H. Anonymous surely can't be

1 This is excerpted from a real article in the Washington Post.

2 Out for Good: The Struggle to Build a Gay Rights Movement in America, p. 200-201

alone.

On the other hand, Socarides and Bieber have called Hooker and Kinsey's data into question. If they are correct, and only a small percentage of the population is homosexual, on what basis could one call it a 'normal' behavior? Are homosexuals, as Bieber contends, individuals whose "heterosexual function is crippled, like the legs of a polio victim"? What does it mean to be 'ill' anyway?



In October of 1969, Time magazine had a cover story on the movement amongst homosexuals for greater social recognition -who they called 'inverts.'[3] In the second paragraph, it referred to "gay" bars (with the quotations), but then proceeded to use the word "gay" without quotes. It even used the term 'gay marriage.' The article, however, made the following claim:

> Most experts agree that a child will not become a homosexual unless he undergoes many emotionally disturbing experiences during the course of several years. A boy who likes dolls or engages in occasional homosexual experiments is not necessarily "queer": such activities are often a normal part of growing up. On the other hand, a child who becomes preoccupied with such interests or is constantly ill at ease with the opposite sex obviously needs some form of psychiatric counseling. While only about one-third of confirmed adult inverts can be helped to change, therapists agree that a much larger number of "prehomosexual" children can be treated successfully

Who are these 'experts' who agree? Is this another Goldwater affair[4]?

These thoughts raise a larger specter in your mind: are psychiatry and psychology scientific?

Starting a decade ago, Thomas Szasz, Professor of Psychiatry at State University of New York Health Science Center in Syracuse, New York has been arguing, quite publicly, that 'mental illness' is a myth! His ideas challenge the very foundation of your field. He's listed on the program, and you're quite excited to get a chance to discuss his polemic claims in some detail.

At the same time, the President of the APA this year is something of a revolutionary himself. George Miller has been arguing for the existence of something called 'Cognitive Psychology', which directly challenges the 50-year tradition of limiting psychological research to the observation, prediction and control of human behavior. For half a century, psychologists have been convinced cannot scientifically investigate unobservable entities like 'minds', but rather must study the behavior of an organism in its environment. Now even that is being challenged!

Are psychology and psychiatry scientific? Is there such a thing as a 'mental illness'? Can (or should) science be used to make the world a better place?

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3 You can read the entire article here: http://www.time.com/time/printout/0,8816,839116,00.html#

4 In 1964, the magazine *Fact* ran a headline proclaiming that a majority of psychiatrists believed presidential candidate Barry Goldwater mentally unstable. See 77 for more.

Basic Principles

Academic associations like the APA not only provide their members with a forum through which they can socialize, share ideas and test or their most recent work; they also represent their discipline to the public. An association's president is often called upon to act as a spokesperson during times of controversy. The associations often define—sometimes very carefully—the qualifications someone must have to become a member.

During 1970's, the APA is being called upon to represent their membership in both of these ways. It is important, therefore, to ensure that actions of the APA—whether it be the election of a new president or the publication of a statement—represent the will of the membership. The association exists for the membership, not the other way around.

Reputation & Replication

In academic culture, reputation is capital. But unlike other reputation-based cultures, your reputation depends entirely on the quality of data you produce, your creativity and insight in designing research, and your ability to explain the ideas in clear, simple terms.

Disagreements are almost always professional: you can disagree vociferously with an opponent, yet respect his or her abilities as a scientist. On the flipside, those who cross the line between professional and personal disagreements run the risk of ruining both their professional and personal reputations.

At some point in your life—probably 7th grade—you were told that 'The Scientific Method' consists of creating hypotheses, designing experiments to test those hypotheses and then formulating a new hypothesis that can be tested. But most importantly, you were probably told that scientific inquiry is distinguished from non-scientific inquiry insofar as scientific inquiry can be replicated by a stranger.

That may be true, but notice that these claims are almost always made with the modal verb 'can.' The sad truth is that few, if any, attempts at replicating scientific studies ever occur. The academy is not set up to encourage studies that reproduce known results. At educational institutions, tenure requirements force scientists to concentrate on producing novel results. Industries employ scientists to create new drugs, new techniques and new treatments, not to check the results of old ones. And practitioners are usually so swamped with the demands of their clientele that they may not be able to engage in research at all, let alone focus on replicating someone else's research.

All of that means that the academic culture relies heavily on reputation. It is generally assumed that academics are honest and that their results *could be* replicated, but will not be. Conferences, such as the APA, rely on a system of peer review to ensure that the papers presented represent the best research available. But peer reviewers are often selected in virtue of their reputation for rigorous research and high standards. Members are elected to positions of leadership because of their reputation as psychologists or psychiatrists, not because of their knowledge of the rules of order for a public meeting. As you propose new research and present your findings at the conferences, remember that what counts is not entertainment value or charming banter, but quality of insight and rigor in data collection.

The Responsibilities of the President

While the presidency of the APA is largely an honorific position, it does come with some serious

responsibilities. It is awarded by election of the membership, according to standards known only to them. Traditionally, it has been given to significant figures in the field at the end of their careers as a kind of 'lifetime achievement' award (for example, Koffka in 1958) and advocates for new and promising avenues of research early in their careers. The first president in this game, George Miller, best exemplifies of the latter.

The President's main responsibilities include presiding over the meetings of the Board of Directors, and opening each conference with a plenary address. These addresses provide the president a huge forum to reflect on recent trends in the discipline and potential future directions.

All presidential addresses are published in the *American Psychologist*, which is available at Jstor.org. Potential presidents should consult the journal for examples.

Game Play

Each week (two or three sessions, depending on your schedule) of game play reenacts one annual conference of the APA in the early 1970s. Thus, the five weeks of game play cover the years 1971-1975. These conferences are huge events. There are presentations on current research, symposia on issues facing the discipline, administrative meetings for various committees, public discussions and votes on proclamations, and publishers promoting their products.

At the beginning of each conference, each member of the APA is given one 'influence point.' At the end of that conference, they must give it to the speaker who presented the best paper. No player may keep these points for himself or herself. Influence points, once awarded, can be stockpiled by faction or bartered with other players. In the final vote (see 'Victory Objectives' below), the influence points can be turned into votes—although the specifics are left to the game master to decide.

The first session of each conference opens with a presidential address. As mentioned in the previous section, the position of President is both an honorific and administrative position. The President is often elected based on his or her reputation as a researcher, but he or she also must have keen leadership skills and knowledge of the policies and procedures of the organization's committee structure. Since these two areas of expertise do not always appear in the same person, an individual is not elected directly to the presidency by the membership. Rather, the membership holds an annual election for the *vice-president*, who is then promoted to president after a year of sitting on the Board of Directors and observing the inner workings of the political system.

The Board of Directors is composed of the APA President, the Vice president, the former president and two members elected at large each of whom serving three year terms. For classes smaller than 16, the Board of Directors will be limited to the current President, the Vice President and the Former President. The executive secretary, who serves without vote, is responsible for maintaining the minutes of the Board of Directors and taking whatever actions the committee approves during its meetings.

At each year's conference, the following events occur:

(1) Presidential Address

(2) Board of Directors circulates proposals to be considered by the membership.
(3) Symposia on topics proposed by membership, as scheduled by the program committee
(4) Open sessions for presenting current research (papers or plenary addresses), as scheduled by the program committee.
(5) Board of Directors meets in open session.
    1. All committees and task forces report
    2. Old Business (tabled from previous meeting)
    3. New Business
        1. Discussion of any proposals circulated in step (2)
        2. Create and administer ballots for proposals.
    4. Election for vice president, who assumes that position at the close of that conference
    5. Election for member-at-large on the executive committee (if necessary)
(6) Executive committee meet in closed session, if necessary.

Game play may take many forms in the classroom. You may be questioning the President about his or her vision for future directions in psychological or psychiatric research, engaging with or participating in a symposium with two or three of your colleagues on a contentious issue of the day, participating in research, evaluating research results, discussing proposals in committee, or even arguing about reports from task forces. The schedule of events will be left to the Program Committee, and it is very important that they distribute the schedule early and widely. See 'Program Committee' on page 19 for more on the potential forms of conference activities.

Victory Objectives

The game normally 'ends' with a decisive vote on the definition of 'Mental Illness,' probably in 1975. There are three basic definitions that ought to be advanced:

Advocates	Definition
APA Task Force	A Medical disorder is a relatively distinct condition resulting from an organismic dysfunction which in its fully developed or extreme form is directly and intrinsically associated with distress, disability, or certain other types of disadvantage. The disadvantage may be of a physical, perceptual, sexual, or interpersonal nature. Implicitly there is a call for action on the part of the person who has the condition, the medical or its allied professions, and society. A mental disorder is a medical disorder whose manifestations are primarily signs or symptoms of a psychological (behavioral) nature, or if physical, can be understood only using psychological concepts.
Behaviorists	A person can be called 'mentally ill' when he or she exhibits emotional or behavioral functioning which is so impaired as to interfere substantially with his or her capacity to function in society.
Psychoanalytic	A person is mentally ill when he or she suffers from internal conflicts that may be subconscious or unconscious, manifesting behavior that is unwanted or disturbing to the individual or the society.
Szasz	There is no 'thing' called 'mental illness,' only sets of behaviors that may be

	destructive to an individual and his or her society.

Factional affiliation and objectives vary from individual to individual.

Influence Points and Voting

At the end of each 'conference', each member of the APA must give his or her 'influence point' to the speaker he or she believes presented the best paper. When it comes time for the final Victory Objective vote—on the final definition of mental illness—those influence points can be turned into votes.

Special Rules

If possible, each player must serve on at least one committee at some point during the game.

Writing Tasks

Every player will write and present at least once during the course of the game. Your role sheet should specify the specific tasks you need to complete.

A special note for data-driven writing tasks: don't say 'studies have shown that' or (in the 1st person) 'I have shown that...', *show it*. That will probably mean that you will have to go to the library, find the original research reports of your character, and familiarize yourself with the basic research design, as well as the relationship between the evidence presented and the thesis that evidence is reported to support. If that sounds like a great deal of effort, it should. Above all, remember that you're not writing a report on this person or position, you are *playing* the person and *defending* the position. So don't write *about* what you (as the character) believe, write *as if you believe it*.

Proposals

Proposals should be formal. They should be distributed to the membership at least 24 hours before a vote is called. It is usually sufficient to distribute proposals during the first session of a conference year, and hold a vote during the second (or third). Ample time for discussion should be allotted for each proposal.

Formal proposals begin by laying out the reasons for the proposal with a series of 'WHEREAS...' clauses. It should then state the resolution. For example, in 1969, the APA resolved:

> **WHEREAS** in many state legislature, bills have recently been introduced for the purpose of repealing or drastically modifying the existing criminal codes with respect to the termination of unwanted pregnancies;
> and **WHEREAS** termination of unwanted pregnancies is clearly a mental health and child welfare issue, and a legitimate concern of APA;
> **BE IT RESOLVED** that termination of pregnancy be considered a civil right of the pregnant woman, to be handled as other medical and surgical procedures in consultation with her physician, and to be considered legal if performed by a licensed physician in a licensed medical facility.

You should follow this format when drafting your proposals. Proposals in the incorrect format cannot

be distributed.

Papers and Symposia

Academic conferences are opportunities to disseminate information you have gathered for your views. The method of presenting those ideas or that data, however, can vary a great deal. The APA currently supports two kinds of presentations: Individual Reports and Symposia. The Program Committee (see below) is encouraged to experiment with new kinds of presentations, including posters, round tables, workshops, and even exhibits, if they choose. Individual Reports are talks given by a single researcher or group of researchers. Symposia are 'panel' presentations, where a group of presentations are offered on a theme or a specific problem.

The Program Committee reviews all proposals for both individual reports and symposia. The guidelines for proposing a report are included in the official 'Call for Papers and Symposia', which follows on page 22.

Research Grants

Research grants are 1-2 page proposals specifying a research project you'd like to carry out. These are submitted to the Research committee (see p. 18) and follow the form specified in the Call for Research Grants', which follows on page 27. If you win a research grant, you will be expected to present your findings at the next annual conference.

Reading aloud

Presentations at academic conferences are evaluated by peers primarily on the basis of the content presented, not the style of presentation. While it is important to practice good public speaking skills-making eye contact with the audience, modulating one's voice, etc.—getting the data right is more important than being entertaining. For that reason, this game will allow 'reading' of some experimental reports. Experimental reports highlight the data presented, and carefully articulate the structure of the experiment performed. It is also advisable to bring handouts for the membership when presenting data.

Presidential addresses, however, should be carefully crafted general lectures. These should appeal to the membership of the APA, which includes many individuals from a variety of backgrounds. They should also be understandable by the general public, as the President is often seen as a spokesperson and advocate for the discipline.

Symposia and presentations to the committees, however, must be delivered without a transcript. Cue cards or notes are allowed, but in these cases, the speaker must strive to make a personal connection with the audience, and hence, must not simply read a prepared speech.

Role of the gamemaster

The gamemaster's central responsibility will be to ensure that the conferences run smoothly. The gamemaster must therefore maintain a robust relationship with the program committee. In a small class, the gamemaster may prefer to the responsibilities of the program committee for himself or herself.

- Act as secretary to the Board of Directors if there is no preceptor available.
- Remind / cajole the program committee to prepare the schedule at least 48 hours in advance of each class.
- Maintain the election cycle (see the table in the instructor's manual)
- Distribute research reports were appropriate.

Outline of Game Sessions

Year	Class	Activities
1971 Washington DC	A	Presidential Address: George Miller Symposium: “Psychiatry: Friend or Foe to Homosexuals: A Dialogue,” (Dr H. Anonymous, E. Hooker) T. Szasz “The Myth of Mental Illness” Presentation of 'mental rotation' task: gamemaster
	B	Marmor “Limitations of Free Association” Proposal from J Marmor Proposal from C. Socarides. Petition from G. Albee. Research report from G. Miller on 'mental rotation' task
1972 Dallas	A	Presidential Address: Albert Bandura Symposium on Medical Model (G. Albee, T. Szasz) Report from taskforces
	B	R. Spitzer 'The Fiegner Criteria' P. Gebhard on the Kinsey reports H. Harlow 'Lust, latency and love' Research Report: _____
1973 Honolulu	A	Presidential Address: _____ Paper(s) _____ Reports from taskforces
	B	Symposium: _____ Proposal to create “Spitzer Taskforce” [other proposals] Research Report: _____
1974 Philadelphia	A	Presidential Address: _____ Symposium: _____ Paper(s) _____
	B	Open hearings on proposed definition of 'mental illness' [other proposals] Research Report: _____
1975 Chicago	A	Presidential Address: _____ Open vote of the membership on definition of mental illness. Paper(s) _____
	B	Symposium: _____ [other proposals] Research Report: _____

Table 1: Outline of game sessions

- Only for a large class (> 16)

Committee structure

The APA is overseen by a Board of Directors, which is responsible for maintaining the organization, and approving all official public proclamations and publications of the organization. The president, who opens the conference with his or her presidential address, also serves as chair of the Board of Directors during that conference. The secretary of the Board of Directors is responsible for maintaining the minutes for that meeting and implementing whatever policy decisions are required.

Responsibilities of the Board of Directors:

- Issue public proclamations.
- Maintain official publications, such as the DSM
- Create ad-hoc committees and task forces, as necessary.
- Oversee and receive reports from the standing committees.

The membership of the Board of Directors is:

President	Chair of the Board of Directors, serving a 1-year term
Vice-president – elected annually	Serves a 1-year term as Vice-president, automatically promoted to President for the next year at the close of that year's annual conference
Former President	Serves a 1-year term *after* their service as the chair of the Board of Directors.
Executive secretary (preceptor), without vote	
Committee member elected at large*	Serving 3-year term.
Committee member elected at large*	Serving 3-year term.

*Table 2: Board of Directors Membership *only used for large classes (>16)*

The membership of the Board of Directors for the course of gameplay is thus: (see Table 1: Outline of game sessions for when these elections take place).

	Former President	President	President-Elect	Member at large 1*	Member at large 2*
1971	Harlow	Miller	Bandura	Milgram	Albee
1972	Miller	Bandura	Elected 1971	Elected 1971	▼
1973	Bandura	1971	Elected 1972	▼	Elected 1972
1974	1971	1972	Elected 1973		▼
1975	1972	1973	Elected 1974	Elected 1974	

*Table 3: Terms for Board of Directors members *only used for classes >16*

The Board of Directors is one of a handful of standing committees of the APA. Standing committees are permanent institutions, whose membership is elected by the membership at large. Ad hoc (literally 'after the fact') committees or 'task forces' are created by simple majority vote of the Board of Directors and are tasked with generating a report on a specific problem or area of research. Usually, these are formed when the Board of Directors believes it has inadequate information on a specific subject. For the purposes of this game, ad hoc committees will conduct literature reviews on behalf of the Board of Directors and report to the membership. Ad hoc committees disband after the report is accepted by the Board of Directors.

The Board of Directors has the power to create ad hoc committees or task forces as it sees fit. The membership of those committees may be specified directly by the Board of Directors at the time of creation, left to the chair of the newly created committee to decide, or even determined by popular vote of the membership. That decision is left to the Board of Directors.

Unlike the creation of ad hoc committees or task forces, the creation of new permanent *standing* committees require a majority vote of the APA membership, not just the Board of Directors. A full proposal for such a committee, specifying its membership structure, voting procedures, rights and responsibilities should be distributed to the membership at least 48 hours before the vote. Dissolving a standing committee requires a majority vote of the membership.

The Board of Directors represents the membership, it does not act in opposition. It is incredibly important, then, that the Board seeks approval from the membership as a whole at every turn. The Board is a capable of assigning duties to various subcommittees on its own, but all matters of policy should be turned over to the membership for an up or down vote.

Standing Committees

In addition to the Board of Directors, there are currently three standing committees of the APA. All standing committees report directly to the Board of Directors annually. All standing committees have the right to request an open session at the general conference for whatever they wish. If they want to initiate a vote by membership, however, they must file a request with the Board of Directors. If the Board of Directors approves the request, the standing committee can administer a vote.[5]

5 The gamemaster may choose, depending on the size of the class, to combine these committees, or assign these responsibilities to the Board of Directors.

Research Committee

The research committee is charged with distributing grants to fund research as well as enforcing the APA's Ethical Standards in the practice of Psychology and Psychiatry (see Appendix 7). The Research committee should solicit proposals in the form of a 'Call for Research Grants' that specifies both the deadline for submissions, as well as the time frame for reviewing submissions. The Research Committee should revise the enclosed 'Call for Research Grants' on p. 27 to suit their needs.

In the context of the game, winning a grant entitles the bearer to access the student body for a period of one class session, during which time he or she can perform his or her approved research project. After that period, the grantee will be expected to present his or her findings to the membership as a conference paper / report.

The Research committee should take great care in considering the scientific value of each proposal. The APA does not want to be seen supporting poor or biased research! As such, members of the Research committee are strongly advised to carefully consult the 'A Primer on Research Methods' on p. 112 as well as the 'Ethics of human research, on p. 52 of the gamebook.

The Research committee is also charged with hearing and ultimately ruling on charges of ethical transgression. It alone has the power to censure a member of the APA. And because these powers apply equally to all members, including those sitting on the Board of Directors, this power can be exercised without approval by the Board of Directors.

The Board of Directors should hold an election each year for a new member of the Research committee.

Members of the Research committee in 1971:

L. Tyler (expiring 1972)
K. Clark (expiring 1973)
J. Marmor (expiring 1974)

Nomenclature Committee

The Nomenclature committee is charged with maintaining the official terminology of psychology and psychiatry. This is embodied by the Diagnostic and Statistical Manual, which is the definitive source for definitions and classifications of mental disorders. It determines who can be diagnosed with what, what treatments are considered responsible and what disorders will be covered by medical insurance. If a condition does not appear in the DSM, psychiatrists cannot treat patients with that condition. Given the increasing importance of health insurance in the 1970s, it is vital to have a standardized diagnostic system to support billable treatments.

Members of the nomenclature committee serve for six years.

Members of the nomenclature committee are strongly advised to carefully consult the 'History of classifications of mental illness,' starting on p. 79 of the gamebook.

Members of the nomenclature committee in 1971:

G. Albee (expiring 1972)
J. Spiegel (expiring 1974)
R. Spitzer (expiring 1976)

Program Committee

The Program Committee is charged with scheduling the conferences. The committee must remember that each conference opens with a public address from the sitting president, and each standing committee has the right to a session at each conference. Not all the standing committees will make use of that time, but each should be approached before the schedule is drawn up.

Proposals for symposia and presentations should be solicited from the general population. The committee meets in closed session (i.e. after class) to determine the conference schedule after reviewing all of the materials submitted. It is vitally important that the symposia and papers accepted represent the highest standard for academic work. They should be judged by that standard alone, not with respect to theoretical commitment or viewpoint. The conference schedule should be made available to the membership at least 48 hours before the conference begins (i.e. by Friday evening before a new conference).

The Program Committee is composed of three members, each of which serve three year terms. Hence, the Board of Directors must hold an election for a new member every year.

The schedule for the conference is set by the 'Program Committee', but there are a number of business events that must take place each year. These are outlined in Table 4.

Program committee in 1971:

E. Hooker (expiring 1972)
A. Anastasi (expiring 1973)
P. Gebhard (expiring 1974)

General Schedule

(1) Presidential Address
(2) Board of Directors circulates proposals to be considered by the membership.
(3) Symposia on topics proposed by membership, as scheduled by the program committee
(4) Open sessions for presenting current research (papers or plenary addresses), as scheduled by the program committee.
(5) Board of Directors meets in open session.
    1. All committees and task forces report
    2. Old Business (tabled from previous meeting)
    3. New Business
        1. Discussion of any proposals circulated in step (2)
        2. Create and administer ballots for proposals.
    4. Election for vice president, who assumes that position at the close of that conference
    5. Election for member-at-large on the executive committee (if necessary)
(6) Executive committee meet in closed session, if necessary.

Table 4: Events that occur at every APA conference – in suggested order

Elections
The following shows elections that must be held each year, and the character vacating that position in parentheses. Characters serve through to the *end* of the conference in the year indicated. The VP immediately becomes the president: so while Bandura vacates the position of VP at the end of the conference in 1971, he becomes President at that moment. The election in 1971 is for the VP of 1972, who will be President in 1973.

Year	VP	Board-at-large*	Research (replacing)	Nomenclature (replacing)	Program (replacing)
1971	1972: (Bandura)	A (Milgram)			
1972	1973	B (Albee)	(Tyler)	(Albee)	(Hooker)
1973	1974		(Clark)		(Anastasi)
1974	1975	A	(Marmor)	(Spiegel)	(Gebhard)
1975	1976	B	(elected 1972)		(elected 1972)

Table 5: Elections to be held each year

Definitions used by the APA

The following are quoted from current websites of the American Psychological Association and the American Psychiatric Association.

Definition of "psychologist"

APA policy on the use of the title "psychologist" is contained in the General Guidelines for Providers of Psychological Services, which define the term "Professional Psychologist" as follows:

> Psychologists have a doctoral degree in psychology from an organized, sequential program in a regionally accredited university or professional school.

The APA is not responsible for the specific title or wording of any particular position opening, but it is general pattern to refer to master's-level positions as counselors, specialists, clinicians, and so forth (rather than as "psychologists"). In addition, it is general practice to refer to APA accredited programs as "APA-accredited" rather than "APA approved." The position as described must be in conformity with the statute regulating the use of the title psychologist and the practice of psychology in the state in which the job is available.

Definition of "psychology"

Psychology is the study of the mind and behavior. The discipline embraces all aspects of the human experience — from the functions of the brain to the actions of nations, from child development to care for the aged. In every conceivable setting from scientific research centers to mental health care services, "the understanding of behavior" is the enterprise of psychologists.

Definition of "psychiatrist"

A psychiatrist is a physician who specializes in the diagnosis, treatment, and prevention of mental illnesses and substance use disorders. It takes many years of education and training to become a psychiatrist: He or she must graduate from college and then medical school, and go on to complete four years of residency training in the field of psychiatry. (Many psychiatrists undergo additional training so that they can further specialize in such areas as child and adolescent psychiatry, geriatric psychiatry, forensic psychiatry, psychopharmacology, and/or psychoanalysis.) This extensive medical training enables the psychiatrist to understand the body's functions and the complex relationship between emotional illness and other medical illnesses. The psychiatrist is thus the mental health professional and physician best qualified to distinguish between physical and psychological causes of both mental and physical distress.

Call for Papers and Symposia

Introduction

The Program committee herein announces a Call of Papers and Symposia for the annual convention of the APA. Please read the relevant rules carefully if you plan to take part in the program. *Note especially the deadlines, the form for abstracts of contributed papers, the forms for symposium proposals, and the proper persons to receive your correspondence.* The pertinent references have been collected into the box on this page for your convenience.[6]

This year will begin with a plenary address by the President. Current plans allow for 2 individual reports and 1 symposium. The Board of Directors will meet in open session to hear proposals from the membership.

Kinds of Programs and Sessions

The meetings regularly contain many kinds of programs and sessions, including research papers, symposia, group discussions, addresses, business meetings, and film sessions, as well as other events, such as reunions, dinners, social hours and the like. In general, requests for information should be submitted to the Program Committee.

The APA Program Committee has full responsibility for the conference program. Persons planning to submit proposals that fall outside the lines outlined herein should consult with the chairman of the APA Program Committee for special instructions.

The chairman of the APA Program Committee should also receive all requests for scheduling of nonsubstantive program activities such as reunions, dinners, social hours, headquarters space, luncheons, and the like. To insure publication in the program all requests must be received by the close of business on the Friday before a conference.

Who may participate

Volunteered Papers

Any member of the APA may read a paper, provided that it has been accepted by the program committee.

A nonmember of the APA

may read a paper provided that he is sponsored by a member of the APA and provided that his qualifications and the quality of his paper are acceptable to the program committee. The APA member who agrees to sponsor a nonmember must submit the abstract of the nonmember's paper to the chairman of the program committee with an accompanying description of the nonmember's scientific qualifications plus the names of recognized scientific societies in which the nonmember holds membership.

6 This entire section is adapted from the "Call for Papers and Symposia" from the 1957 *American Psychologist*.

Symposia and invited addresses

The program committee may invite distinguished nonmembers to contribute to the program as special speakers or as participants in symposia. Because symposia often involve topics extending beyond the competence of APA members, it is frequently desirable to include nonmembers as participants. Acceptance of a distinguished speaker or of a symposium proposal by the Program Committee constitutes the require sponsorship of nonmember participants.

Limits of Individual Participation

Over the past several years the APA's Board of Directors working with the program committee has developed several ground rules for the limits of individual participation in the annual convention program. These rules were designed to ensure the widest possible participation by APA members and also to prevent troublesome conflicts in the time schedule. Briefly, the rules have been that each member may present no more than one volunteered paper and that each member may, in addition, participate in no more than one additional session such as a symposium, discussion group, and the like. It is still strongly recommended that maximum participation be limited to *one* symposium or discussion group plus one paper.

Individual Reports

Unless otherwise indicated, four ten-minute papers will be scheduled for each 50-minute session. In instances of multiple authorship the person whose name is listed first will be expected to present the paper.

A paper previously read at the Annual APA Convention may not be read again, unless it is a substantial elaboration (additional findings, etc.). Two papers which report highly similar findings from a cooperative project may not be read at the convention.

The APA Board of Directors have voted that, for reasons of economy, this rule should be followed: Abstracts printed in the *American Psychologist* are limited to 100 words. However, it is recognized that more detailed information will be needed by the Program Committee for use in the selection of papers. The procedures for research reports and other individual reports are described below.

Research Reports

Each author of a research report must submit a 100-word abstract (1 copy) for publication if the paper is accepted, and also a 300-word summary (4 copies) for committee publication. If the author desires, tables presenting results may be submitted with the 300-word *summary*. Not more than one page of tables should be submitted. This means that all the data should have been obtained and the analysis completed at the time the abstract and summary are submitted to the Program Committee.

Other individual reports

Theoretical papers, case studies, and the like are perfectly acceptable for the program. *The 100-word abstract of a non-experimental paper must, however, be accompanied by a manuscript of the complete paper in draft form.* The complete manuscript is required in order that the Program Committee may be in a better position to judge the contribution to the program.

Form of abstracts and summaries

All abstracts and summaries must be typed on one side of the paper only, double-spaced throughout and on 8 1/2" X 11" paper.[7]

The 100-word abstract

The purpose of the published abstract is to provide information concerning the psychological relevance of the paper. .. primarily to justify its scientific validity. Hence abstracts should be concerned with content … rather than with method and technique unless the purpose of the paper is essentially methodological). Examples of good short abstracts from many different fields may be found in *Psychological Abstracts.*

Abstracts must be limited in length to 100 words (*not* counting title, author and institution). Longer abstracts will not be printed but will be listed by title only. Abstracts should not contain tables, drawings, footnotes, or bibliographic entries, as such material will not be printed.

The following outline should be followed in preparing the abstract:

Title of Paper:

Author(s): Sponsor (if any):

Institution(s):

Text of abstract (not to exceed 100 words)

Because the 100-word abstract will be sent to the printer, do not underline or type anything with all capital letters. The type written abstract should be checked and proofread carefully, since it will be printed in the form in which it is submitted. Authors are urged to give careful thought to the visual aides that will best facilitate presentations of their data. If slides are used, members are urged to consider presenting graphic and tabular material on paper. As a new procedure, authors of accepted papers will be asked to indicate their preference for audio-visual support.

The 300-word summary

The text of the summary will normally include a statement of the problem, subjects used, procedure, results and conclusions.

Summaries must be limited in length to 300 words (*not* counting title, author, and institution). The 300-word summary may be accompanied by not more than one page of supplementary tables, drawings, footnotes, etc.

The form for submitting the 300-word summary should be exactly the same as for the 100-word abstract except, of course, for the longer text.

Four copies of the 300-word summary and the supplementary tables, etc. are required. *Author, sponsor, and institution should appear on the first copy only.* The first copy is the one that will be used by the Program Committee Chair in the creation of the Conference *Proceedings.* The other three copies without identifying data will be used by the Program Committee for judging the acceptability of the paper.

7 The game master may elect to allow submissions via email.

Where to send abstracts and summaries

Copies of the abstract and summary of a volunteered paper should be sent to the chair of the Program Committee.

Symposia

A symposium provides for several prepared papers on a single theme or problem. It is an excellent form of meeting if the aim is to bring to an audience several diverse or even contradictory views, presented by a number of "experts." The expectation would be that all papers would first be read; then there would be a substantial period for interchanging of views among the speakers (and invited discussants, if desired); finally, a brief period for questions or points raised from the floor. It is important to plan the time so that there is real interaction among participants after the papers. In order to realize the unique value of the symposium the chairman *should select speakers at an early date*, arrange for the participants to exchange papers *ell in advance of the session*, and ensure that ample time is allotted for discussion among the participants and contributors from the audience

Initiation of symposia

Any member of the APA may suggest a symposium topic to the chairman of the Program Committee. Such proposals must be made *at an early date* as a successful symposium requires much planning and correspondence. A member may also submit a fully organized symposium for the Program Committee's consideration.

Form of symposium proposals

Suggestions to the Program Committee

When a member only *suggests* but does *not organize* a symposium, he should indicate the title of the topic for discussion, comment on the significance of the topic, and list the names and addresses of the proposed chairman and other participants. Such suggestions should be sent to the appropriate divisional program chairman *well in advance of the deadline* to allow for ample time for planning.

Member-Organized symposia

A member may organize a proposed symposium in complete detail and present it for approval to the Program Committee. Each such proposal should indicate the title of the symposium and list the names of the chairman and participants, together with the titles of participants' contributions, if these titles are to be published. *Five copies of the completed symposium plans must be submitted to the Program Committee by the deadline.*

Symposia organized by the Program Committee

Symposia may be organized independently by the Program Committee or in response to the requests of members.

Special Programs

The Program Committee should feel free to try new kinds of programs. Forums, discussion groups, panels, round tables, conferences, and workshops are often valuable alternatives to papers and

symposia. Members are invited to send suggestions for new types of programs to the Program Committee. Special sessions should be suggested *well in advance of the deadline to allow for ample time for planning*. Procedures for initiating special programs should follow in general the procedures for initiating symposia.

Miscellaneous Meetings and Special Sessions

APA boards, committees, etc. desiring business meetings must send to the Chairman of the APA Program Committee by the deadline a statement of estimated attendance, time required, time and day preferred and whether arrangements for luncheon and dinner are desired.

Luncheons, dinners and social hours may be scheduled for non-APA organizations if they send their request to the chairman of the APA Program Committee by the deadline. Such scheduled events will be listed in the condensed program.

Audio-Visual Presentations

APA members, commercial film producers or distributors who wish to present new films, film strips, or other audio-visual aids (including sound recordings) should make the Program Committee aware of this fact at the deadline. The committee will review and select the audio-visual materials which are to be presented as part of the APA program.

Exhibits

APA members are encouraged to exhibit apparatus, teaching aids, and other materials of scientific and applied interest. Commercial agencies are invited to request arrangements for exhibits. All commercial exhibitors will be charged for space. Those wishing to arrange for exhibits must write to the chairman of the Program Committee.

Call for Research Grants

Introduction

The Research Committee of the APA herein solicits proposals for research that will forward the disciplines of psychology and psychiatry. *Note especially the deadlines, the form for abstracts of contributed papers, the forms for symposium proposals, and the proper persons to receive your correspondence.* The pertinent references have been collected into the box on this page for your convenience.

Winners will be granted the support of the other members of the class for a period of one class session. The primary investigator must specify in the research proposal how the other students will participate: as subjects, participants, observers or confederates.[8]

Winning grants will be determined by the Research Committee, in accordance with the criteria specified herein. All proposals must be in line with the APA's ethical guidelines which are in force at the time of submission.

Research Supported

The APA seeks to advance the creation, communication and application of knowledge of the mind and behavior to benefit society and improve people's lives. The APA embraces scientific inquiry into all aspects of the human experience — from the functions of the brain to the actions of nations, from child development to care for the aged. And in every conceivable setting from scientific research centers to mental health care services, "the understanding of behavior" is the enterprise of psychologists.

Additionally, the APA aspires to advance the understanding of psychology and psychiatry as scientific disciplines. To that end, it will support any research that follows the standards of scientific inquiry and contributes to the central goals of the association.

It is imperative that all research supported by the APA must be accordance with the ethical guidelines published by the APA.

Who May Submit Proposals

Members of the APA

Any member of the APA may submit a proposal for a research grant. APA membership is limited to those meeting the definition of 'Psychologist' or 'Psychiatrist' used by the APA (see p. 20 of the gamebook).

Nonmembers of the APA

As the APA Research committee seeks to further the disciplines of Psychology and Psychiatry wherever they are practiced, the primary investigator of a grant need ot be a member of the APA. The primary investigator, however, *must* be a Psychologist or Psychiatrist as defined by the APA (see p. 20

8 This section adapts language from the mission statements of the contemporary APA (http://www.apa.org/about/)

of the gamebook).

Confederates, Observers and Assistants

Individuals working in psychological research should be engaged in some significant way with the academic pursuit of knowledge. Confederates, observers and assistants in research must therefore be students of psychology or psychiatry, if not psychologists or psychiatrists in their own right.

Limitations of Participation

A primary investigator may submit one (1) proposal annually. An individual may serve as a consultant, confederate, observer or assistant on any number of grant proposals in addition to proposing himself as a primary investigator.

Form of the Proposal

Form of the Proposal

Introduction

Limited to 100 words, the introduction should specify the phenomenon you wish to examine and why. Briefly describe the phenomenon in general, and discuss how it relates to the study of the human mind and behavior.

Background / Review

Briefly describe the history of research into this phenomenon, and why that history is insufficient. Summarize what is already known about the phenomenon, including the background information you gleaned during your literature review.

Rationale

Describe the questions you are examining and explore any possible implications of your study. This includes listing the specific questions you are addressing, explaining how your research is related to the larger issues raised in the introduction. Specifically describe the claims, models or hypotheses you will evaluate with your research. Explain how your research will contribute to our understanding of the mind.

Method and Design

Describe how you will go about collecting data and testing the questions you wish to examine. While novel methods are encouraged, the primary investigator must be able to specify the scientific validity of any methods proposed.

Method: How will you collect the data?

Describe the general methodology you choose for your study, i.e. observational, experimental, etc.

- Explain why this method is the best method for this question.
- Specify who will participate in your study, and why.
- Describe the sample you would test and explain why you have chosen this sample. Include

age, and language background and socio-economic information, if relevant to the design.

- Are there any participants you would exclude? Why, why not?

Design

- Describe what kinds of manipulations/variations you would make or test for in order to test your hypothesis(es).
- Describe the factors you would vary if you were presenting a person with stimulus sentences.
- Explain how varying these factors would allow you to confirm or disconfirm your hypotheses.
- Explain what significant differences you would need to find to confirm or disconfirm your hypothesis(es). In particular, how could your hypothesis(es) be disconfirmed by your data?
- Controls: What kinds of factors would you need to control for in your study?
- Describe what types of effects would be likely to occur which would make your results appear to confirm, or to disconfirm your hypothesis(es).
- Describe how you can by your design rule out or control for apparent effects.

Procedure

- How are you going to present the stimuli?
- What is the participant in the experiment going to do?

Analysis

- How will you analyze the results?
- What kind of results would confirm your hypothesis?
- What kind of results would disconfirm your hypothesis

Significance and Contribution

References

Where to send your proposal

Three copies of the proposal should be sent to the chairman of the Research committee.

Reports

Research findings should be submitted to the conference committee for the annual national conference following the awarding of the grant. The primary investigator should follow the guidelines found under ' Research Reports' (see item in the 'Error: Reference source not foundError: Reference source not found') in drafting his research report. Winning a grant in no way guarantees inclusion in the following year's conference program.

Conference Schedule for 1971

Presidential Address: Dr. G. Miller "The Future of Psychology"

Distribution of proposals to be considered this year:

J. Marmor: proposal to remove 'homosexuality' from the DSM-II (302.0)

C. Socarides & I. Beiber: proposal to create taskforce on sexual deviation

J. Spiegel and/or R. Green: proposal to create task force of historical study and literature review of homosexuality in psychology and psychiatry.

Symposium "Psychiatry: Friend or Foe to Homosexuals: A Dialogue"

Dr. E. Hooker "The mental health of non-patient male homosexuals."

Dr. H. Anonymous, "I am a homosexual and a psychiatrist."

F. Kameny and/or B. Gittings "Gay, Proud and Healthy"*

Papers:

Dr. T. Szasz "The Myth of Mental Illness"
Dr. J Marmor "Limitations of Free Association"

General business meeting agenda:

Committee Reports

Research	Dr. Tyler
Nomenclature	Dr. Spitzer
Conference	Dr. Hooker

Old Business

New Business:

Discussion:

Proposal from J. Marmor

Proposal from C. Socaridies / I. Beiber

Proposal from G. Albee.

Nominations and elections for:

Vice President 1972.

Replacement for Milgram, member at large on the Board of Directors.*

*only in a large class

Public Character Information

Main Factions

Players represent three factions with different perspectives on not only the nature of scientific inquiry into the human mind, but the object of those studies themselves. A number of independents, representing a variety of academic disciplines, complement these three factions.

It should be noted that unlike some other reacting games, individuals in these factions are not bound to think or vote the same way on the central issues in the game. The factions represent high-level agreement on the nature of the science of the mind, there is almost complete disagreement on all other issues. In fact, when it comes to actual game play, you might find that your votes are more aligned with members of other factions than your own.

Psychoanalysts

Psychoanalysts are split in the classical (Freudian), Jungian and unspecified. The game contains a number of independent psychiatrists who, while they are familiar with psychoanalysis, are not professed members of the faction.

Classical

Classical psychoanalysis can be summarized by five basic hypotheses:

1. First, psychoanalysts hold that the mind is composed of entities in conflict, also known as the *hypothesis of intrapsychic conflict* or *dynamic hypothesis*. In classic Freudianism, the hypothesis followed "the discovery of the unconscious" by Breuer and Freud in 1895 (see Freud & Breuer on page 89). Traumatic event or fantasies can leave a subject with memories that are unacceptable to the conscious awareness. The conscious awareness defends itself by suppressing the traumatic event in the unconscious by means of repression (see, e.g. *Introductory Lectures on Psychoanalysis,* p. 82, 94 also p. 438). This hypothesis is sometimes called the *psychodynamic* hypothesis.
2. Second, psychoanalysis posits that there is a finite amount of psychic energy available to any given individual. This forms the *Economic hypothesis* of classical psychoanalysis (See Freud, *Introductory Lectures,* p. 26 and 436-7 for the thesis that psychic energy is sexual; p. 340, 442-3 and 466for an explicit statement. It also appears in *On the Interpretation Dreams*, Ch7). The activities of the mind are "costly," and hence the mind will optimize its function for the most efficient option.
3. The *topographical hypothesis* is Freud's most well known: the mind composed of three basic kinds of thoughts: conscious thoughts, pre-conscious thoughts and unconscious thoughts. The term 'thoughts' here is used broadly, to include wishes, desires, fears, emotions, etc. Conscious thoughts are those of which we are aware. Pre-conscious thoughts, are not currently conscious, but are readily available to consciousness. The memory of your last birthday, for example, is probably pre-conscious, not unconscious. Unconscious thoughts, which far outnumber the other two categories, are unavailable to consciousness. All these thoughts, however, originate in

experience: there is nothing in the unconscious store that is not linked in some way to that individual's past experiences. (see, e.g. *Introductory lectures*, p. 25)

4. Fourth, the g*enetic hypothesis* claims that human behavior is best explained in terms of the original conditions that cause it. In Freud's theory, the genetic hypothesis takes the form of his theory of infantile sexuality.

   For Freud, all behavior ultimately originates in sexual desire. To summarize briefly: Freud hypothesized that sexual drive, the main source of psychic energy, is present from birth. He is explicit in using the term 'sexual' here, but it is sometimes easier to understand if we use a softer term like 'using one's body for pleasure.' Freud repeated argues for infantile sexuality by pointing out the noncontroversial pleasure children take in tickling or cuddling, but we wouldn't necessarily call these 'sexual' today. Freud, somewhat to his determinate, insisted on the term 'sexual' even despite these kind of objections.

   This drive towards physical gratification takes various forms throughout our lives, moving through the oral phase to the anal phase to the phallic stage. If the internal drives are left unfulfilled, or the internal conflicts unresolved (which is really two ways of saying the same thing), neurotic behavior results.[9]

5. Psychoanalysts differ with respect to the entities that comprise the mind, but most recognize Freud's basic *structural hypothesis*: the mind is functionally divided between the id, the ego and the superego (see *Introductory Lectures*, p. 365).[10] The *id*, which is totally unconscious, contains the representations of sexual and aggressive instinctual drives. The *ego* regulates and controls the desires of the id in relation to the demands of the external world, which are internalized as the *superego*. The ego follows the *economic hypothesis*, in seeking to maximize gratification of the instinctual desires while minimizing the amount of psychic energy spent in that process. It achieves this end through the use of various mechanisms of representation and repression (sometimes called 'defense mechanisms')[11]:

   - **Repression**: The first mechanism proposed by Freud (Breuer and Freud), the ego banishes or precludes an idea or feeling from conscious awareness.
   - **Isolation**: Ideas are split off from their associated feelings (affect) and presented as alien or foreign in origin.
   - **Reaction formation**: replacing the unacceptable desire with its symbolic opposite.
   - **Displacement**: unacceptable wishes are removed from their original objects and moved to an acceptable, or at least not-unacceptable one.

9 'Neurotic' behavior results from continuing conflict between the libinal desires and the ego's repression techniques. 'Psychotic' behaviors result when the libinal desires assert their reality on the ego. See the discussion of 'neurosis' and 'psychosis' in the History of the Classification of Mental Illness section below.

10 The *Introductory Lectures* were published before Freud solidified the structural hypothesis using this terminology. The beginnings of the idea, however, is present in the later chapters on neurosis: see, e.g. p. 437-438, where he describes the conflict between the 'libido' and the 'ego'.

11 The *Introductory Lectures* mention only repression, subdivided into 'condensation' and 'displacement' as mechanisms of the ego, but promises further work on the topic (p. 364-366). He began to develop a taxonomy of ego mechanisms later in his life, but the full-fledged taxonomy we see here was developed his daughter Anna Freud (1936). *The Ego and and the Mechanisms of Defense*. C. Baines (trans). Connecticut: International University Press.

- **Projection**: an unacceptable idea or desire is attributed to someone else.
- **Undoing**: painful or unacceptable ideas are minimized by overdoing some opposite action in some opposite arena.
- **Turning against the self**: the original object of an unpleasant desire (usually hate) is replaced with the self.
- **Denial**: the individual remains unaware of certain aspects of reality that would be painful to recognize.
- **Rationalization**: the individual convinces himself or herself that their behavior has a logical, reasonable, or at least neutral, explanation in order to avoid the unacceptable cause.
- **Identification**: usually found during development, a child becomes like another person (usually a parent) in order to deal with separation or loss of a love-object.

These conflicts can be discovered by studying the mechanisms of representation that are used to obfuscate and repress traumatic experiences and latent desires. The mechanisms of representation take the object represented (the 'latent content') and replace it with a representation (the 'manifest content'). The relationship between these two can be one of:

- **part to whole**: the latent content is fragmented and represented in isolation. (*Introductory Lectures,* p. 147)
- **allusion**: the latent content is represented by, in Freud's words "a caption, as it were, or an abbreviation in telegraphic style." (*Introductory Lectures,* p. 148)
- **plastic portrayal**: the latent content is replaced with a plastic, concrete portrayal of it, taking its cue from the superficial aspects of the latent content. For example, the editor of a 'Survey' may be represented in a dream as a 'surveyor'. (*Introductory Lectures,* p.149)
- **symbolism**: symbols are stable translations of one object into another. The relation between the object symbolized (the latent content) and the object that does the symbolization (the manifest content) is stable in an individual, but may not be stable between individuals. But it is always true that the latent content and manifest content share *something* in common. It is the task of the psychoanalysts, through the techniques of free association and manipulating transference reactions, to discover the common factors between the latent and manifest content, and hence reveal the symbolic relationships.[12] (*Introductory Lectures,* p. 185)

12 In many works, including *Psychopathology in Everyday Life, Introductory Lectures on Psychoanalysis* and *On the Interpretation of Dream*, Freud provides the following outline of the kinds of commonality that underly symbolism: that of number (i.e. '3' and male genitalia), shape (i.e. long, straight objects such as sticks, umbrellas, posts, trees represent the male organ / hollowness or enclosing space such as vessels, bottles, boxes, trunks and ships symbolize female genitals; apples, peaches and fruit symbolize breasts), function (i.e. penetrating the body: knives, daggers, spears, sabers, firearms, rifles, pistols etc.; producing liquids, such as water-taps, water-cans, etc.; and being capable of lengthening or shortening, such as pencils, hanging-lamps, etc.; defying gravity (i.e. balloons, flying machines and zeppelins also represent the male organ). More complicated representations depend on personal associations with or reactions to objects: the complicated nature of landscapes mean they represent female bodies, sweets represent sexual satisfaction. Activities such as playing games, playing piano, sliding, gliding or pulling stand for masturbation because of the similarity of action. On the same note, rhythmic actions such as dancing, riding and climbing stand in for the sex act

(see *Introductory lectures on psychoanalysis*, Lecture VII-X)

By revealing these relationships to the subject of psychoanalysis, the ego becomes aware of latent trauma and hence can deal with it in healthy ways, removing the conflict and obviating the neurosis.

Interpsychic conflict is a part of the normal maturation of a healthy adult mind. Neurosis and Psychosis occur, therefore, when this development goes wrong in some important way. Development can go awry through *inhibition* or *regression* (see Introductory Lectures, Ch 22-23). In 'inhibition', portions of function of the ego are held back from development, often because it becomes *fixated* on a particular libidnal instinct. In 'regression' an ego that has progressed further than a given developmental stage returns to that stage was a kind of defense mechanism.

The terms 'neurosis' and 'psychoneurosis':

> "refer to a class of psychiatric illnesses characterized by prominent symptoms that have no significant somatic origin. The symptoms include disturbances of feelings (anxiety, depression, guilt), disturbances of thought (obsessions), and disturbances of behavior (compulsions and phobic inhibitions), all of which are experienced as alien to the comfort and well-being of the individual" (*American Handbook of Psychiatry,* p. 737-738)

Neurosis, then, is explained when the conflict between the desires of the id and the defense mechanisms of the ego go awry: (1) the ego's defense mechanism leaves the drive unfulfilled, (2) the defense mechanism imposes a disguised or symbolic form onto the original drive in order to hide it from the consciousness, and (3) the superego imposes some suffering as punishment for the self-denial, such a guilt.

Psychosis occurs when the id constructs its own reality and imposes it on the ego. The subject can no longer function in normal life—he or she may be beset by hallucinations, persistent delusions, wild mood swings, visual and auditory agnosia, amnesia, etc. It is worth noting that unlike *neuroses*, psychoses may be the result of organic brain syndromes or other physical conditions.[13] Psychoses not associated with physical conditions include schizophrenia, affective disorders and other reactions.[14]

As the id is the source of psychic energy, unacceptable drives using one of the mechanisms above will not remain repressed forever. As unacceptable drives gain in strength and threaten to reveal themselves, a number of reactions are possible (see *Introductory Lectures,* Ch. 19):

- **Anxiety reaction**: a chronic, free-floating anxiety which may have periods of acute anxiety. Typified by feelings of helplessness; although symptoms include phobias, obsessions, compulsions and depression. It is caused by the failure of all the defenses to keep the unacceptable instinctual drives in stable control. (*Introductory Lectures*, Ch. 25, p. 452)
- **phobic reaction**: typified by one or more prominent phobias: and extreme anxiety focused on an ordinary place, object or situation. The mechanism of displacement moves the anxiety associated with the unacceptable drive to a neutral place, object or situation, which then is allowed to flourish unchecked by the defense mechanisms of the ego. (*Introductory Lectures,* p. 495-498)

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itself. Simple associations may appear as well: neckties, which are only worn by men, can symbolize men. (*Introductory Lectures,* p. 188-204)

13 see 290-294 of the DSM II, which is included in Appendix 6.

14 see 295-299 of the DSM II

- **conversion reaction**: what used to be called 'hysteria', it can manifest itself in many symptoms, including spasms, temporary paralysis, visual or auditory agnosia, weakness, shortness of breath, pains, etc. It results when the unacceptable instinctual drive is 'converted' into apparently physical symptoms. (*Introductory Lectures,* p. 485, 497-8)
- **obsessive-compulsive reaction**: the patient is troubled by persistent thoughts that are usually painful in nature. These obsessional thoughts interfere in some important way with the patient's ability to engage in a meaningful adult life: i.e. intellectually, sexually, socially or professionally. Anxiety at not following through on an obsessional thought, which often manifests as repeated actions regarding some mundane object, can be severe and often is only revealed by completion of the mundane task in question.[15] (*Introductory Lectures,* Ch. 17)

As an example, classical psychoanalysis holds that obsessive-compulsive reaction can be traced to unresolved conflicts in the anal stage of development, where frustration at potty-training is turned into rage towards one's mother. That rage, in turn, is found to be unacceptable by the ego and repressed through one of the standard mechanisms creating obsessions with objects or scenarios that are symbolically linked to the original frustration. The particular object of obsession is essentially random, as the subject latches onto some mundane object present at the time of the frustration. The choice of obsessional object, however, can provide clues as to the true cause of the frustration, as it is invariably linked, through one of the mechanisms of representation, to the true object. The compulsive aspect of this conditions is an 'acceptable' outlet for the unacceptable rage towards one's mother. Psychoanalysts go on to hold that obsessive-compulsive is often unconsciously aware of his or her rage and may take extreme steps to avoid losing control when provoked.

Psychoanalytic Treatment.

Psychoanalysis—the process of psychoanalytic treatment—aims at resolving unresolved conflicts that cause neurosis.[16] The psychoanalyst seeks to align the psychic forces within the individual so that they are no longer in conflict. A psychoanalyst must keep all five psychoanalytic hypotheses—the topographical, dynamic, economy, genetic and structural—in mind during treatment, but in practice, tends to focus on one or two at a time.

Classical psychoanalysis makes use of two basic techniques: free association and manipulating transference reactions. In *free association*, the psychoanalyst removes himself or herself from the patients line of sight (hence the standard couch with the psychoanalyst seated behind the patients' head), and asks the patient to say whatever comes to mind when prompted regardless of logic, order or social constraint. In a relaxed state, it is theorized, these free-associations will reveal the connections between ideas that, when analyzed, explain the relationships this particular patient uses to represent latent content with manifest content.

Freud is often naively criticized for insisting on universal symbolic relationships: cigars always represent penises, for example. But this simply isn't true: classical psychoanalysis is 'empirical' in the

15 See item 300 in the DSM II for the full taxonomy of neurosis.

16 There is something of a controversy over whether psychoanalysis can be used to treat psychosis. While many psychoanalysts believe psychosis and neurosis to be on a single spectrum of mental dysfunction, the psychotic patient's connection to reality is so tenuous that the techniques of free-association and transference threaten to develop the psychosis further, rather than dissolve it.

sense that there is nothing in the mind that was not put there from experience. The symbolic relationships found in a patient have built up by that patient, based on his or her unique experiences. Where commonalities occur between patients, they are at the level of the language (i.e. symbolic relationships that originate from homophones in German would not be found in an English-speaking patient) or culture (i.e. shared mythology). So while a cigar may represent a penis because of its shape to some, it may represent excrement because of its color to others.

Transference reactions are inappropriate reactions in which the patient reacts to a person or object in the present as if it were a person or object from the past (see *Introductory* Lectures, Ch. 27). Transference is, in Freud's terms, a 'repetition,' a reliving of an event, relationship, emotion, attitude, etc. with a substitute person or object. Transference can be a very powerful tool for the psychoanalyst, especially when the object that is the source of the unresolved conflict can be projected onto a substitute, and the patient allowed to address the object directly. If a patient's neurosis originates in unresolved anger towards his dead father, substituting a inanimate object for that father can allow the patient to exorcise the anger and hence dissolve the neurosis. Since Freud's masterwork *Dora*, many psychoanalysts have held transference to be the primary tool of psychoanalysis.

In order for transference to work, however, the patient must be willing and capable of suspending his or her 'ego' and regressing to the state where he or she really believes that the substitute is the original source of the conflict. As psychotics live in a state where experienced reality is formed by the psychic desire not reality itself; psychotics are not suitable candidates for treatment via transference.

Throughout treatment, the psychoanalysts must be aware of *resistance*. Resistance is the patient's opposition to treatment. It defends the status quo by maintaining the neurosis or psychosis. Resistance may be conscious, subconscious or pre-conscious. It may hinder or misdirect free association. It may distract via inappropriate and unhelpful transference reactions. It may adapt to novel situations and invent new strategies. As Freud himself said “The resistance accompanies the treatment step by step. Every single association, every act of the person under treatment must reckon with the resistance and represents a compromise between the forces that are striving towards recovery and the opposing ones.” (1912, p. 11).

The psychoanalytic treatment can then be broken down into four basic steps:

1. Confrontation. The first step in psychoanalysis: the patient's conscious ego must be made aware that there is a problem.
2. Clarification: The problem is put into sharp focus. Often, this process works with the previous, as minor conflicts give way to greater conflicts.
3. Interpretation: The process of bringing the unconscious conflict into consciousness.
4. Working through: the progressive elaboration of resistance mechanisms as they manifest.

There are, of course, many more complications that occur in any single patient's psychoanalytic treatment, but these four basic steps are almost universally recognized.

When embarking on a new treatment, then, the psychoanalyst has three basic aims:

1. To translate the productions of the patient into their unconscious antecedents. The patient's thoughts, fantasies, feelings, behavior, and impulses have to be traced to their unconscious predecessors.

2. The unconscious elements must be synthesized into meaningful insights. Fragments of past and present history, conscious and unconscious, must be connected so as to give a sense of continuity and coherence in terms of the patient's life.
3. The insight so obtained must be communicable to the patient. As one listens one must ascertain what uncovered material will be constructively utilizable by the patient. (quoting from the *American Handbook of Psychiatry* , p. 779)

Adler

INTENTIONALLY LEFT BLANK FOR THE TIME BEING

Jung

Jungian psychoanalysis is distinguished from classical psychoanalysis by two major shifts in the basic theory.

1. Jungian psychoanalysis holds that the subconscious contains psychical elements that do not originate in the experiences of the individual being psychoanalyzed. As mentioned previously, classical psychoanalysis is empirical about the mind (for an explanation of that tradition, see Pre-history of Psychology p. 79), holding that the mind comes into the world as a blank slate (tabla rasa), and is progressively filled by experiences. The contents of the unconscious must therefore be traceable to discrete experiences in the individual's life. And it is the task of psychoanalysis to discover those experiences.

   Jungian psychoanalysts believe they have evidence of unconscious contents that are *not* explainable by the experiences of the individual. Thus, they hypothesize the existence of a deeper 'collective unconscious' that is composed of 'archetypes' that inform and structure the content of both the unconscious as well as our conscious lives.

2. Second, on a related note, Jungian psychoanalysis extends the *genetic hypothesis* from Freud's insistence that all psychic energy was sexual energy to include sexual energy as just one of many sources of psychic energy.

   For example, Freud originally posited that neurosis originated in traumatic experience in childhood on the basis of self-reports of his case-study patients. He ultimately came to realize, however, that these self-reports were fictionalizations, theorizing that the true cause of his patient's neurosis lay in their infantile fixations. Once again, Jung extends Freud's insight to allow for fixations throughout life. He argues that:

   > ..the moment of the outbreak of neurosis is not just a matter of chance; as a rule it is most critical. It is usually *the moment when a new psychological adjustment, that is, a new adaptation, is demanded.* Such moments facilitate the outbreak of a neurosis, as every experienced neurologist knows.
   >
   > This fact seems to me extremely significant. If the fixation were indeed real we should expect to find its influence constant: in other words, a neurosis lasting throughout life. This is obviously not the case. The psychological determination of a neurosis is only partly due to an early infantile predisposition; it must be due to some cause in the

present as well. (*The Essential Jung*, 49 "Psychoanalysis and Neurosis")

> That leads to the general proposition that Freud's identification of sexual desire as *the* origin of neurosis was far too narrow. Sexual desire is one of the pleasurable instincts that shape our psychology, but for Jung, "psychoanalytic theory should be freed from the purely sexual standpoint. In place of it I should like to introduce an *energetic viewpoint* into the psychology of neurosis" (ibid, p. 50).
>
> Jung hypothesizes that the libidinal energies naturally increased when faced with an obstacle, in order to overcome it through adaptation. When that obstacle is too great, the libido retreats and regresses, and the patient reverts to a more primitive "mode of adaptation." The practice of psychoanalysis is the same, however, as Jung theorizes that the energy that the patient needs to overcome the present obstacle and become healthy is attached to these sexual fixations. By bringing past frustrations and maladaptations to light through psychoanalysis, the libidinal energy is free to return to the present-day task: adaptation to overcome the current obstacle.
>
> The task of a psychoanalyst, then, is not only to discover the original traumatic cause of a neurosis, probably buried deep in childhood, but to discover the current obstacle that is perceived as being insurmountable. Jung agrees with Freud that the childhood fixations determine the *form* of neurosis, but unlike Freud holds that they cannot be considered the *immediate cause* of neurosis. [17]

The difference between practice among the psychoanalytic approaches is emphasis, not technique. As J.B. Wheelwright noted in 1963, "Freud focused on sexuality, Adler focused on power, and Jung focused on growth, which he called individuation." (quoted in *American Handbook of Psychiatry*, p. 817)

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Behaviorists

Behaviorism holds that psychology is properly limited to the observation, prediction and control of behavior.[18] It typified by four hypotheses:

17 In Aristotlean metaphysics, the *formal* cause of something is the form of the thing whereas the *immediate* cause are the events that immediately proceeded the thing in question. The *form* is the pattern or type of thing something is. The immediate cause is what brings that thing into being. In this context, the *form* distinguishes the type of neurosis, the immediate cause is what caused the neurosis to present at this moment.

18 As with most things in the history of ideas, even this definition is controversial. I've chosen this definition, which reflects Skinner's presentation of Behaviorism in his 1953 *Science and Human Behavior,* chapter 1 because it is the most

1. *Internal entities are neither the object of scientific study nor explanatorily relevant to psychology.*[19] Behaviorism begins with the deceptively simply insight that while psychoanalytic explanations are framed in terms of psychic entities (ego, id, etc.), quantities (psychic energy) and interactions (the mechanisms of repression), what all psychological theories seek to explain is behavior. These psychic entities, and the massive vocabulary that is required to discuss them, are all hypothetical, posited for the sake of explaining why people behave the way they do. Moreover, psychoanalytic hypotheses require a sharp dividing line between human behavior and animal behavior, which is not born out by empirical observation.[20]

   To be scientific, then, psychology must limit itself to observable behavior. The discourse of psychology as a scientific discipline is restricted to those terms that denote observable variables: behavior and environmental conditions, not internal mental states. From characterizing the phenomenon to be studied to offering an explanation, the behaviorist is committed to avoiding all terms that denote entities, quantities or interactions that are internal or unobservable.[21]

   A corollary of the thesis, which is frequently highlighted as an independent claim, is that *introspection is not a scientific form of observation.* One might argue (as historical figures like William James and William Wundt did–see "American Psychology: William James and the function of consciousness" and "Wundt" p. 66) that internal states *are* scientifically observable via introspection. Behaviorists, however, reject introspection as scientifically unreliable.[22] Evidence from Wundt and James demonstrates, they argue, that introspective procedures produce different results for different practitioners, and scientific evidence should be replicable regardless of the practitioner.

   Behaviorists disagree on whether internal mental states are non-existent fictions or merely unavailable to scientific inquiry; but that is not important here. What is important is that these putative internal mental states do not enter into the scientific study of behavior, or the scientific language that describes and explains behavior.

2. *The proper object of study for psychology is the organism and its environment.* As a corollary of this insight, Behaviorists see behavior as the activity of an *organism*, not the activity of a *mind*. Psychology, for the behaviorist, is not the study of *parts* of an organism (such as the "ego," "id," and "superego") and their relations, but rather the organism *as a whole* and its

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explicit and radical. Watson defines that the goal of behaviorism as the "prediction and control of behavior," (1913) leaving out observation. To understand the various different forms of behaviorism that have been posited since Watson's, please see First Revolution: Behaviorism on p. 68

19 See, for further explication of this claim, Skinner 1953, p. 27-31. Watson does not use the term 'inner state', but refers rather to 'consciousness', which he (possibly fallaciously) equates with the object of introspection. Thus, after objecting to the unreliability of introspective reports in a laboratory setting he claims "The time seems to have come when psychology must discard all references to consciousness; when it need no longer delude itself into thinking that it is making mental states the object of observation."

20 Animals do not have superegos or techniques of repression, so the behaviors explained in psychoanalytic terms should not generalize across species. But they do. Therefore, psychoanalytic explanations are insufficient.

21 Watson seeks to eliminate the following misleading and unscientific terms from psychology: "consciousness, mental states, mind, content, introspectively verifiable, imagery, and the like." (1913)

22 See, e.g. Watson 1913 "Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness" and Skinner 1953 p. 30

relationships with its environments. And similarly, explanations offered by Behaviorists refer to organisms, behaviors and environmental conditions, not methods of repression and techniques of representation. Behaviorism restricts is object of study as well as its explanations to the macroscopic scale: things that can be directly observed by the naked eye. In the classical sense, Behaviorism rejects *as non-scientific* explanations in terms of or investigations into things that are larger (societies, cultures)[23] or smaller (brains, neurons).

This thesis unites behaviorism with classical psychoanalysis in opposition to Jung, because it holds that all present behavior is the result of discrete learning events in the individual's past. But unlike psychoanalytic explanations that posit unresolved psychic conflict to explain behavior, the behaviorist appeals only to previous learning experiences. To discover the reason for a given behavior then, is to discover the patterns of environmental reinforcement (called 'conditioning') that have caused the organism to learn this behavior. To cure a behavior is to 'extinguish' those conditioned responses in the organism or block those responses by substituting a new and novel response. Behaviorists hypothesize that learning can be physically realized in neurology, and hence, behaviorism is far more simple and plausible a theory than psychoanalysis, which cannot.

3. *The principles of learning are generalizable across species*.[24] Behaviorists argue that given that animals are incapable of introspection—or, if they are, they cannot communicate it—psychological theories that make use of introspection are incapable of explaining animal psychology. Behaviorism, however, is not. Non-human animals are organisms living in environments that behave in certain regular ways. All of that is accessible to behavioristic science. And as it is an uncontroversial observation that at least some human behavior is the same as animal behavior (caring for the young, for example), it follows that behaviorism can explain regularities that introspective psychology cannot.

Learning

A behavioristic explanation of a given behavior takes the form of specifying the mechanism of learning that caused this behavior. A behavioristic treatment seeks to 'extinguish' that behavior through providing an antithetical mechanism.

Learning mechanisms in behaviorism are built on the principles of reinforcement and extinction. Explanation of reinforcement and extinction are always specified in terms of stimulus and response. According to Watson, by 'stimulus' behaviorists “mean any object in the general environment or any change in the physiological condition of the animal, such as the change we get when we keep an animal from sex activity, when we keep it from feeding, when we keep it from building a nest.” By 'response' behaviorists “mean that system of organized activity that we see emphasized anywhere in any kind of animal, as building a skyscraper, drawing plans, having babies, writing books, and the like.” (1929)

In recent years, B.F. Skinner has popularize operant conditioning and the idea of 'reinforcing' a behavior. Anything that increases the likelihood of a response given a stimulus is a *reinforcement*.

23 Recall that Behaviorism was formed in the first half of the 20th century, when Hegelianism was a viable theory of social science. Behaviorists here are *not* rejecting the plausibility of modern social psychology, anthropology or sociology. They are rejecting the idea of a transcendent spirit that instantiates human culture.

24 See, e.g. Watson 1913 “The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute.”

Positive reinforcement takes the form of adding some "rewarding" object to the environment when the desired response occurs. "Negative" reinforcement usually means the removal of such objects. Reinforcing objects need not be physical, tangible objects, but can something as intangible as the attention of a parent. "Punishment" is a negative condition applied to the organism following a behavior.

A decrease in the probability of a response given a stimulus over time is called *extinction*. In classical conditioning models of learning, the lack of repetitive exposure to reinforcement will result in progressive extinction of the conditioned response.

The mechanisms learning are:

- Classical conditioning, which is sometimes called 'past reinforcement,' occurs when an unconditioned stimulus, such as the presentation of food, causes an unconditioned ('natural') response, such as salivation. These 'natural' stimulus-response patterns are called "embryologic responses," and they are raw material of a classical conditioning paradigm. In classical conditioning, the conditioning intervention in the embryological response occurs by pairing a 'conditioned stimulus' (such as the ringing of a bell) with the unconditioned stimulus. After repeated exposures, the original unconditioned response can be removed, and the response (now 'conditioned') will occur when the subject is presented with the conditioned stimulus. These basic pairings between conditioned stimuli and responses can be generalized over time, so that any loud noise, for example, may cause salivation.
- Operant conditioning differs from classical conditioning insofar as the conditioning intervention occurs after the response, rather than concurrent with the unconditioned stimulus. Operant condition introduces the possibility of *promised reinforcement*, which would occur when the promise of future reinforcement causes behavior.

Behaviorism as a treatment in psychiatry[25]

Behavioral treatments in psychiatry, like behaviorism in psychology, follows from a deceptively simple insight: that psychiatric treatment aims at the cessation of maladaptive behavior. Like psychoanalysis, behavioral therapies restrict themselves to neurosis, not psychosis.

There are two major kinds of inhibition therapies found in the literature:

- Reciprocal inhibition, developed by Wolpe, involves diminishing the maladaptive behavior by conditioning a new behavior in response to a given stimulus that is incompatible with the undesired behavior. For reciprocal inhibition to work, the maladaptive behavior *must be* incompatible with the new conditioned behavior. Aversion therapy, which exposes the subject to the object of desire and conditions a new negative response, is a form of reciprocal inhibition.
- Transmarginal inhibition, also known as *flooding*, involves exposing the patient to strong examples of the stimuli for prolonged periods.

Other inhibition therapies, such as 'retroactive inhibition' are usually forms of reciprocal inhibition.

25 For more on the complicated history of the relationship between psychoanalysis and behaviorism, see Hornstein 2002.

Primary Sources:

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Watson, John B. (1913) "Psychology as the Behaviorist Views it." *Psychological Review*, 20, 158-177. Also available at: http://psychclassics.asu.edu/Watson/views.htm
Watson, J. B. (1929). "Behaviorism -- The Modern Note in Psychology."

Secondary Sources:

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Wolpe, R. (1958) *Psychotherapy by Reciprocal Inhibition*, Stanford University Press, Stanford.
Wozniak, Robert H. (1997) "Behaviorism: The Early Years" Available at http://www.brynmawr.edu/Acads/Psych/rwozniak/behaviorism.html

Cognitivists

Cognitivists reject the behaviorists' conjecture that scientific psychology is limited—as *scientific* psychology—to observable behavior. But neither do they seek to reestablish introspection as a valid observational method. Cognitivists agree that scientific evidence must be observable. But they disagree that the explanations of behavior must necessarily be in terms of observable macro-objects like organisms and environments. Cognitivists see the mind/brain as an information-processing system; therefore an adequate scientific explanations would take form of the specifying the mechanisms by which information is processed—including positing algorithms or modeling neural mechanisms that would generate the behavior in question. The difference between the Cognitivists and the Behaviorists is not about the experimental methods they follow, but rather about the structure of a scientific explanation.

Thus, cognitivism distinguishes itself from behaviorism in terms of a meta-theoretical thesis which rejects the half of the first behavioristic hypothesis:that *internal entities are explanatorily irrelevant to psychology*. It does not reject the other three, or the corollary of the first, *that introspection is not a form of observation*.

Cognitivism grew slowly between 1955 and 1965, in part because it was not an 'intentional' revolution like Behaviorism. George Miller's 1956 paper "The magical number seven, plus or minus two: Some limits on our capacity for processing information," is one of the classics of cognitive psychology, although the term 'cognitive psychology' does not appear in it (see Miller, George A. (1956) "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information on p. 128). Miller argues that human's short-term memory behavior is limited to seven items plus or minus two. These 'items', however, need not be individual atomic units like Ebbinghaus' nonsense syllables. Miller hypothesized that brain could 'chunking' information into groups, which then could be easily remembered. To borrow a classic example from Bechtel and Graham, the sequence A, B, C, B, B, C, N, B, C, C, B, S would be difficult to remember on its own, but if it is 'chunked' into ABC, BBC, NBC, CBS, remembering it is simple. According to Miller, "There seems to be some limitation built into us either by learning or by design of our nervous system, al limit that keeps our channel capacities in this general range." (1956, p. 86) See Second Revolution: Cognitive Science on p. 74 for a historical introduction. Miller's paper in included in the appendix.

Primary Sources:

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Bechtel, W., A. Abrahamsen, et al. (1998). The Life of Cognitive Science. A Companion to Cognitive Science. W. Bechtel and G. Graham. Malden, Mass, Blackwell.
Baars, B. J. (1986). The Cognitive Revolution in Psychology. New York, The Guildford Press.
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Stillings, N.A., Feinstein, M.H., Garfield, J. L., Rissland, E.L, Rosenbaum, D.A., Weisler, S.E., Baker-Ward, L. *Cognitive Science: An Introduction*, Cambridge: MIT Press

Brief Sketch of the Game Characters

Characters with a '*' will only be included in large classes.

Psychoanalysts

*Richard Green, MD (Psychoanalyst)**

Professor of Psychology and UCLA, Green is most well known for his groundbreaking studies of 'sissy boys' and 'tomboy' girls, conducted with John Money of Johns Hopkins University. Green's recent essay "Mythological, Historical and Cross-Cultural Aspects of Transsexualism", which is reprinted in the book he co-edited with his mentor John Money *Transsexualism and Sex Reassignment* (1969), traces the "longstanding and widespread pervasiveness of the transsexual phenomenon."

Notable Work

Green, R. & Money, J. (1961) "Effeminacy in prepubertal boys; Summary of eleven cases and recommendations for case management." *Pediatrics* 27(2), p. 286-291

Green R. & Money J (eds) (1969). *Transsexualism and Sex Reassignment*. The Johns Hopkins University Press (November 1, 1969) ISBN 0-8018-1038-8.

*Robert Hopcke (Psychoanalyst - Jungian)**

Robert Hopcke is a counselor, with degrees in both psychotherapy and pastoral counseling, best known for his successful Jungian practice in Bay Area in California.

*Harold Lief, MD (Psychoanalyst - Jungian)**

President of the American Academy of Psychoanalysis in 1967, Harold Lief is Professor of Psychiatry at the University of Pennsylvania. He is best known for his advocacy for greater emphasis on sexual

education in medical schools.

Notable Work

Leif, H. (1964) "The Psychological Basis of Medical Practice" *Postgrad Med J* 40:355 doi:10.1136/pgmj.40.464.355-a

Judd Marmor, MD (Psychoanalyst - Freudian)

The 'Psychiatrist to the stars', Judd Marmor has built an impressive psychiatric practice in L.A., after having immigrated to the US from Britain after serving in the British Navy during WWII. Rumor has it that many of the popular portrayals of psychoanalysis in the movies today are based on you.

Initial Member of the Research committee, term expiring 1974.

Notable Work:

Marmor, J. (ed.) (1965). *Sexual inversion: The multiple roots of homosexuality* (pp. 83107). New York: Basic Books.

Charles W. Socarides, MD and/or Irving Bieber, MD (Psychoanalysts - Freudian)

Irving Bieber is Professor of Psychiatry at New York University Medical College and Charles Socarides at Columbia University. Socarides and Bieber have spent most of their career treating and studying male homosexuality. Bieber is primary author of the 1962 study *Homosexuality: A Psychoanalytic Study of Male Homosexuals* is, in many ways, a response to the Kinsey Report. It reports on you study of 106 male homosexuals and 100 male heterosexuals seeking psychoanalysis for various problems. According to Socarides and Bieber, homosexuality is a neurotic adaptation to unresolved conflict, usually originating in the Oedipal stage of development.

Notable works

Bieber, I. (1962). *Homosexuality: A Psychoanalytic Study*: By Irving Bieber, et. al. New York: Basic Books, New York

John P. Spiegel, MD (Psychoanalyst)

World-famous for his study of combat fatigue, co-authored with Dr. Roy Grinker in the 1945 book *Men Under Stress*. Grinker and Spiegel argued, quite persuasively, that combat fatigue was not a result of a character flaw, but rather the social circumstances of war. It should, therefore, be treated, not punished. Spiegel is a former president of the American Academy of Psychoanalysis.

Initial member of the nomenclature committee, term expiring 1974.

Notable Work

Grinker, R. & Spiegel, J. P. (1945) *Men Under Stress* American Psychological Association. Was once available print-on-demand, but is not currently: ww.apa.org/pubs/books/4320127.aspx

Behaviorists

Albert Bandura, PhD (Behaviorist)

Initially serving the APA as Vice president (or President-elect) of the APA in 1971, will become president in 1972. He is therefore an initial member of the board of directors.

Bandura was trained in Behaviorism while at the University of Iowa, where Hull's advocate Spense taught. He was not, however, attracted to the strict mathematical-deductive model proposed by Hull, tending towards the work of Tolman. After graduating Iowa, he went west to work with other like-minded Tolman followers. Currently, Bandura is a Professor of Psychology at Stanford University. His work on 'social learning,' which was started by his 'bobo-doll' studies, is widely known. Many expect his presidential address in 1972 to both explain his notion of 'vicarious reinforcement,' and articulate the relationship between his behavioristic approach and Miller's new 'cognitive psychology'.

Bandura was elected as a Fellow of the APA in 1964.

Notable works

Bandura, A. (1965). Vicarious processes: A case of no-trial learning. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 1-55). New York: Academic Press.

Harry Harlow, PhD (Behaviorist)

Initially 'former' president, serving on the board of directors.

Harlow is most well known for his series of experiments on separation anxiety in baby rhesus monkeys, Harry Harlow has become one of the most important advocates for behaviorism in the APA today. Harlow's primate lab at the University of Wisconsin is widely recognized as one of the top places for training young researchers in experimental psychology. Harlow won the Society for Experimental Psychology's Howard Crosby Warren medal in 1956 and the National Medal of Science in 1967. He served as President of the APA in 1970.[26]

Notable works

Harlow, H. (1958) “The nature of love” *American Psychologist* 13(12) 673-685 On Psych Classics: http://psychclassics.yorku..ca/Harlow/love.htm.

Evelyn Hooker, PhD (Behaviorist)

Evelyn Hooker studied with Karl Meunzinger and Robert Yerkes, pioneers in the fields of animal behavior. Starting in the 1950s, Hooker became interested in human sexuality. In 1953, she won a grant from the National Institute of Mental Health (NIMH) to study the mental health of 'non-patient, non-inmate homosexuals'. Hooker showed that if homosexuality itself were removed from the diagnostic information, homosexual men were no more likely to be diagnosed as 'neurotic' than heterosexual men.

On the program for the first class with Dr. H. Anonymous as a panelist on the topic 'Psychiatry: Friend or Foe to Homosexuals: A Dialogue'

Initial member of the Program committee, term expiring 1972.

26 For the purposes of the game, 1970. In reality, 1958-1959.

Notable works

Hooker, E. (1956). A preliminary analysis of group behavior of homosexuals. Journal of Psychology, 42, 217-225.

Cognitivists

Noam Chomsky, PhD (Cognitivist, Linguist, Political Radical)

In 1971, Noam Chomsky is a quickly rising star in the academy. Currently a professor of Linguistics at MIT, his work is revolutionizing the field, changing the very idea of linguistics from the descriptive study of existing languages to the understanding of how languages result from formal (logical) rules. Chomsky is also a harsh critic of Skinner's radical behaviorism. His review of Skinner's 'Verbal Behavior' is widely seen as a devastating blow to behaviorism. It is contained in the appendix.

See, e.g.:

Chomsky, N. (1959). "Review of Skinner's Verbal Behaviour" Language 35: 26-58. Electronic copy of 'review' with preface: http://cogprints.org/1148/0/chomsky.htm (included in the appendix)
Chomsky, N. (1966). *Cartesian Linguistics* New York, 1966

George Miller, PhD (Cognitivist)

President of the APA in 1971. When the game begins, Miller is serving on the board of directors and responsible for the Presidential address to open the first game session. Miller was trained in behaviorism, but, in part because of his friendship with Chomsky, has developed a new approach he calls 'Cognitive Psychology.' Miller has a side interest in the history of psychology, having worked with E.G. Boring and authored *Psychology: the science of mental life.*

Notable Works:

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. Psychological Review, 63, 81-97.
Miller, G. A. (1962). Psychology, the science of mental life ([1st ed.). New York,: Harper & Row.

*David Marr, ABD (Cognitivist)**

A young neuroscientist from Cambridge, England, not yet finished with his PhD Working on a information-theoretical model of how the brain's visual system works.

Independents

George W. Albee, PhD (Independent - clinical psychologist)

Clinical Psychologist. Albee worked as the executive secretary for the APA from 1951-1953, along side Harry Harlow's wife. Many of the committee structures and procedures followed today were actually refined by Albee during his time as secretary.In the 1950s, he chaired a task force to survey the resources available to mental heath professionals. The astonishing clarity of the resulting report, along with Albee's unwavering commitment to preventative mental health practices caused a great stir in

psychiatric and psychological circles.

Author of 'A declaration of independence for psychology' (1964), Albee is a major figure in the often 'acrimonious' debate regarding the suitability of the medical model for understanding mental illness. If any questions arise regarding the APA's decision-making procedures, Albee is the person to ask. He has held every position of responsibility in the organization save the Presidency and Vice-Presidency.

Initial member of the nomenclature committee, term expiring 1972. In classes over 16, also 'member at large' for the board of directors starting in 1971.

Notable Works

Albee, G. W. and M. Dickey (1957). "Manpower Trends in Three Mental Health Professions." *The American Psychologist* **12**: 57-69.
Albee, G. W. (1970) "The uncertain future of clinical psychology" *American Psychologist* 1071-1080

Anne Anastasi, PhD (Independent - psychologist: psychometrics)

The 'guru' of psychological testing, Anne Anastasi has developed more psychometrics that anyone else. Her 1954 textbook *Psychological Testing* is a classic in the field, defining psychometrics for a generation.

Initial member of the Program committee, term expiring 1974.

Notable Works

Anastasi. (1967). "Psychology, psychologists, and psychological testing." *American Psychologist* 22 (4), p. 297-306
Anastasi, A. (1964) *Differential Psychology* 3rd Edition. Macmillan
Anastasi, A. (1954) *Psychological Testing* 1st Edition. Macmillian

Kenneth Clark, PhD (Independent - psychologist)

Kenneth Clark, along with his wife Mamie Phipps Clark, are the authors of a hugely famous study of the racial attitudes of young children. Ken and Mamie presented four identical plastic dolls that different only with respect to color to black children between the ages of three and seven. When asked which doll they preferred, the majority selected the white doll. When asked to color in a drawing 'the same color' as themselves, most of the black children choose yellow or white crayons. Ken Clark testified as an expert in three of the five cases that were combined into the landmark school desegregation decision *Brown v. The Board of Education,* and his summary was cited by Chief Justice Warren (footnote 11) as influencing the court's decision.

Initial member of the Research committee, term expiring 1973.

Notable Works

Clark, Kenneth B. & Clark, Mamie K. (1939). The development of consciousness of self and the emergence of racial identification in negro preschool children. Journal of Social Psychology, S.P.S.S.I. Bulletin, 10, 591-599. [Available at psychclassics: http://psychclassics.yorku.ca/Clark/Self-cons/]
Clark, Kenneth B. & Clark, Mamie K. (1940). Skin color as a factor in racial identification of negro

preschool children. Journal of Social Psychology, S.P.S.S.I. Bulletin, 11, 159-169. [Available at psychclassics: http://psychclassics.yorku.ca/Clark/Skin-color/]

*D Fordney-Settlage, MD (Independent – gynecologist)**

Assistant Professor of Obstetrics and Gynecology Division of Reproductive Biology at the Los Angeles County-USC Medical Center. Diane Fordney-Settlage has recently come to national prominence as an advocate for women's sexual health following the wide-spread adoption of oral contraceptive.

John Fryer, MD (Independent - psychiatrist)

Psychiatrist at Temple University Hospital in Philadelphia, John Fryer is a outspoken advocate for the rights of gay psychiatrists.

Paul Gebhard, PhD (Independent - anthropologist)

Director of 'The Kinsey Institute' (The Institute for Sex Research) at Indiana University, where Gebhard is a Professor of Anthropology.

Initial member of the Program committee, term expiring 1973.

Kinsey Reports:

Kinsey, Alfred C. et al. (1948/1998). Sexual Behavior in the Human Male. Philadelphia: W.B. Saunders; Bloomington, IN: Indiana U. Press. Currently out of print, but on google books.
Kinsey, Alfred C. et al. (1953/1998). Sexual Behavior in the Human Female. Philadelphia: W.B. Saunders; Bloomington, IN: Indiana U. Press. Preview available on google books.
Gebhard, Paul H. and Johnson, Alan B. (1979/1998). The Kinsey Data: Marginal Tabulations of 1938-1963 Interviews Conducted by the Institute for Sex Research. Philadelphia: W.B. Saunders; Bloomington, IN: Indiana U. Press. Preview available on google books.

*Ron Gold (Independent - journalist)**

Independent Journalist for *Variety*, Gold is attending the APA meeting to cover the protests by gay activists.

*Frank Kameny and/or Barbara Gittings (Independent - activists)**

Frank Kameny and Barbara Gittings are the co-directors of the Mattachine Society, an organization advocating for greater respect for homosexuals.

*Stanley Milgram, PhD (Independent – social psychologist)**

Former Director of Harvard's Department of Social Relations, currently director of the Graduate Program in Social Psychology at CUNY. Milgram is most famous for his 'small world' experiments, which asked randomly selected individuals in the midwest to attempt to deliver a message to a randomly selected individual in Boston through their existing social contacts. It was this study that produced the commonly-held belief that all people are separated by 'six degrees of separation.'

Notable Works:

Milgram, Stanley. (1967). "The Small World Problem" *Psychology Today,* 2 p. 60 – 67

*Jean Piaget, PhD (Independent - developmental psychologist)**

Director of the International Center for Genetic Epistemology in Geneva, Switzerland. Currently 76, Jean Piaget is a legend in Psychology, generally recognized as the first main proponent and theorist of developmental psychology. Piaget's theory of 'Genetic Epistemology' marks a different approach to psychology from either Psychoanalysis or Behaviorism, borrowing from both.

Notable Works:

Piaget, J. (1924). *Judgment and reasoning in the child*, London: Routledge & Kegan Paul, 1928. available at http://www.archive.org/details/judgmentandreaso007972mbp

Piaget, J. (1936). *Origins of intelligence in the child*, London: Routledge & Kegan Paul, 1953.

Piaget, J. (1957). *Construction of reality in the child*, London: Routledge & Kegan Paul, 1954.

Piaget, J. (1941). *Child's conception of number* (with Alina Szeminska), London: Routledge & Kegan Paul, 1952.

Piaget, J. (1945). *Play, dreams and imitation in childhood*, London: Heinemann, 1951.

Robert Spitzer, MD (Independent - psychiatrist)

Researcher at Columbia Center for Psychoanalytic Training and Research. Spitzer is a brilliant researcher, who has great promise in the field of psychiatry. As a young undergraduate, Spitzer wrote a paper discrediting the fraudulent psychiatrist Wilhelm Reich's 'orgone accumulator,' which he once believed in and sought treatment through. The FDA used his paper in their prosecution of Reich.

Initial member of the nomenclature committee, term expiring 1976.

Notable Works

Spitzer, R. (1953). “An Examination of Wilhelm Reich's Demonstrations of Orgone Energy” available at http://www.srmhp.org/0401/reich.html

Thomas Szasz, MD (Independent - psychiatrist)

Author of the polemic *The Myth of Mental Illness* (1960) and *The Manufacture of Madness: A Comparative Study of the Inquisition and the Mental Health Movement* (1970), Thomas Szasz has become a major thorn in the side of the psychiatric community. His position as Professor of Psychiatry at the State Hospital of New York at Syracuse was even threatened in the early Paul Hoch, New York’s commissioner of mental hygiene.

On the program for 1971.

Notable Works

Szasz, T. (1960). “The Myth of Mental Illness” *American Psychologist*, 15, p. 113-118 available at http://psychclassics.yorku.ca/Szasz/myth.htm
Szasz, R. (1974). *The Myth of Mental Illness: Foundations of a Theory of Personal Conduct* New York: Harper & Row.

Szasz, T. (1970). *The Manufacture of Madness: a comparative study of the Inquisition and the mental health movement* New York: Harper & Row (See esp. the chapter titled "The Modern Psychiatric Scapegoat - The Homosexual")

Leona Tyler, PhD (Independent - psychologist: counseling)

Leona Tyler's *The Psychology of Human Differences* is a classic in the psychology of human differences. Tyler has long sought to increase the respect for individual personalities in the practice of psychology and psychiatry. Her 'choice pattern technique' is one way of measuring these differences, and her work is standard fare for all graduate students of counseling.

Initial member of the Research committee, term expiring 1972.

Notable Works

Tyler, L.E. (1969). *The Work of the Counselor*, Prentice Hall

*Philip Zimbardo, PhD (Independent – social psychologist)**

Professor of Social Psychology at Stanford. Philip Zimbardo has a great deal of promise as a researcher, but has yet to gain national prominence.

Things you should know.

Ethics of human research

Ethical codes of research have generally followed the discovery or publication of horrifically unethical experiments. The most famous of these is probably the Nuremberg Code, adopted by the international medical community after the discovery of the Nazi 'experiments' performed on Jews, Homosexuals and Gypsies during the Holocaust. The Nuremberg code is available online, and should be reviewed by anyone proposing an experiment or sitting on the Research Committee. See http://www.ushmm.org/research/doctors/Nuremberg_Code.htm.

The Nuremberg Code

The Nuremberg code lays out ten simple principles for design experiments on humans. They are:

1. The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be so situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior form of constraint or coercion; and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.

   The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs, or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.
2. The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods of means of study, and not random and unnecessary in nature.
3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results will justify the performance of the experiment.
4. The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.

5. No experiment should be conducted where there is an *a priori* reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.
6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.
7. Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability or death.
8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required though all stages of the experiment of those who conduct or engage in the experiment.
9. During the course of the experiment the human subject should be at liberty to bring the experiment to an end if he has reached the physical or mental state where continuation of the experiment seems to him to be impossible.
10. During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him that a continuation of the experiment is likely to result in injury, disability or death to the experimental subject.

Table 6: The Nuremberg Code

The Declaration of Helsinki

In 1964, the medical community through the World Medical Association adopted the 'Declaration of Helsinki', which replaced the Nuremberg code as *the* standard for ethical experimentation on humans by the medical community. The World Medical Association still maintains the Declaration, adopting the most recent revisions in 2004. It is available online (http://www.wma.net/e/policy/b3.htm).

Psychiatrists, as practicing medical doctors, are bound by the Declaration of Helsinki. While it is far more complete than the Nuremberg code, the same basic ideas appear:

I. Basic Principles

1. Biomedical research involving human subjects must conform to generally accepted scientific principles and should be based on adequately performed laboratory and animal experimentation and on a thorough knowledge of the scientific literature.

2. The design and performance of each experimental procedure involving human subjects should be clearly formulated in an experimental protocol which should be transmitted to a specially appointed independent committee for consideration, comment and guidance.

3. Biomedical research involving human subjects should be conducted only by scientifically qualified persons and under the supervision of a clinically competent medical person. The responsibility for the human subject must always rest with a medically qualified person and never rest on the subject of the research, even though the subject has given his or her consent.

4. Biomedical research involving human subjects cannot legitimately be carried out unless the importance of the objective is in proportion to the inherent risk to the subject.

5. Every biomedical research project involving human subjects should be preceded by careful assessment of predictable risks in comparison with foreseeable benefits to the subject or to others. Concern for the interests of the subject must always prevail over the interests of science and society.

6. The right of the research subject to safeguard his or her integrity must always be respected. Every precaution should be taken to respect the privacy of the subject and to minimize the impact of the study on the subject's physical and mental integrity and on the personality of the subject.

7. Physicians should abstain from engaging in research projects involving human subjects unless they are satisfied that the hazards involved are believed to be predictable. Physicians should cease any investigation if the hazards are found to outweigh the potential benefits.

8. In publication of the results of his or her research, the physician is obliged to preserve the accuracy of the results. Reports of experimentation not in accordance with the principles laid down in this Declaration should not be accepted for publication.

9. In any research on human beings, each potential subject mustbe adequately informed of the aims, methods, anticipated benefits and potential hazards of the study and the discomfort it may entail. He or she should be informed that he or she is at liberty to abstain from participation in the study and that he or she is free to withdraw visor her consent to participation at any time. The physician should then obtain the subject's freely given informed consent, preferably inheriting.

10. When obtaining informed consent for the research project the physician should be particularly cautious if the subject is in dependent relationship to him or her or may consent under duress. In that case the informed consent should be obtained by a physician who isn't engaged in the investigation and who is completely independent of this official relationship.

11. In case of legal incompetence, informed consent should be obtained from the legal guardian in accordance with national legislation. Where physical or mental incapacity makes it impossible to obtain informed

consent, or when the subject is a minor, permission from the responsible relative replaces that of the subject in accordance with national legislation. Whenever the minor child is in fact able to give a consent, the minor's consent must be obtained in addition to the consent of the minor's legal guardian.

12. The research protocol should always contain a statement of the ethical considerations involved and should indicate that the principles enunciated in the present declaration are complied with.

II. Medical Research Combined with Professional Care (Clinical Research)

1. In the treatment of the sick person, the physician must be free to use a new diagnostic and therapeutic measure, if in his or her judgement it offers hope of saving life, re-establishing health or alleviating suffering.

2. The potential benefits, hazards and discomfort of a new method should be weighed against the advantages of the best current diagnostic and therapeutic methods.

3. In any medical study, every patient- including those of a control group, if any- should be assured of the best proven diagnostic and therapeutic method.

4. The refusal of the patient to participate in a study must never interfere with the physician-patient relationship.

5. If the physician considers it essential not to obtain informed consent, the specific reasons for this proposal should be stated in the experimental protocol for transmission to the independent committee (1, 2).

6. The physician can combine medical research with professional care, the objective being the acquisition of new medical knowledge,only to the extent that medical research is justified by its potential diagnostic or therapeutic value for the patient.

III. Non-Therapeutic Biomedical Research Involving Human Subjects (Non-Clinical Biomedical Research)

1. In the purely scientific application of medical research carried out on a human being, it is the duty of the physician to remain the protector of the life and health of that person on whom biomedical research is being carried out.

2. The subjects should be volunteers- either healthy persons or patients for whom the experimental design is not related to the patient's illness.

3. The investigator or the investigating team should discontinue the research if in his/her or their judgment it may, if continued, be harmful to the individual.

4. In research on man, the interest of science and society should never take

precedence over considerations related to the well-being of the subject.

Table 7: Declaration of Helsinki

In the context of psychiatry, of course, the distinction made between therapeutic research and non-therapeutic research is crucially important. If a psychiatric patient were to be deemed incapable of making an informed decision, and there is an experiment therapy that the psychiatrist believes may help, there are few ethical checks and balances to constrain the psychiatrist from performing unwarranted experiments.

The APA Ethical Standards for Psychologists

The APA Standards were first published in 1953. They were revised in 1959, 1963 and 1968. The 1968 standards, which should guide the research committee in determining which research programs should be allowed to move forward, are attached in the Appendix.

Most of the APA standards outline the responsibilities of psychologists who practice counseling and patient care. While those are incredibly important, we're most concerned here with **Principle 16: Research Precautions**. In 1959, section 16 was titled '**Harmful Aftereffect.' I**t read:

Principle 16. Harmful Aftereffects. Only when a problem is significant and can be investigated in no other way is the psychologist justified in giving misinformation to research subjects or exposing research subjects to physical or emotional stress. a. When the possibility of serious aftereffects exists, research is conducted only when the subjects or the responsible agents are fully informed of this possibility and volunteer nevertheless. b. The psychologist seriously considers the possibility harmful aftereffects and removes them as soon as permitted by the design of the experiment. c. A psychologist using animals in research adheres to the provisions of the Rules Regarding Animals, drawn up by the Committee on Precautions in Animal Experimentation and adopted by the American Psychological Association.

Table 8: APA Ethical Standards: 1959

Four years later, in 1963, the committee responsible for the Ethical guidelines move the 'preamble' into a numbered point (a), changed the title to 'Research Precautions' and added a new preamble. It also changed the phrase 'is significant' to 'is of scientific significance'; ' can be investigated in no other way' became ' it is not practicable to investigate it in any other way'; ' giving misinformation to research subjects' was dropped; and the phrase 'whether children or adults' added to the new point (a). (b) added the qualification of 'reasonable' to 'possibility'; changed 'harmful' to 'injurious' and 'volunteer' became 'agree to participate'. © changed 'removes' to 'avoids or removes'; and (d) were unchanged: (changes italicized)

Principle 16. Research Precautions. *The psychologist assumes obligations for the welfare of his research subjects, both animal and human.*

a. Only when a problem is *of scientific significance and it is not practicable to investigate it in any* other way is the psychologist justified in exposing research subjects research subjects, *whether children or adults*, to physical or emotional stress.

b. When the possibility of *injurious* aftereffects exists, research is conducted only when the subjects or the responsible agents are fully informed of this possibility and *agree to participate* nevertheless.

c. The psychologist seriously considers the possibility harmful aftereffects and *avoids or removes* them as soon as permitted by the design of the experiment.

d. A psychologist using animals in research adheres to the provisions of the Rules Regarding Animals, drawn up by the Committee on Precautions in Animal Experimentation and adopted by the American Psychological Association.

Table 9: APA Ethical Standards 1963

These changed little between 1963 and 1968, except for the addition of the qualifying phrase 'as part of the investigation' to (a) and adding provision (e) governing the use of psychoactive drugs:

Principle 16. Research Precautions. The psychologist assumes obligations for the welfare of his research subjects, both animal and human.

a. Only when a problem is of scientific significance and it is not practicable to investigate it in any other way is the psychologist justified in exposing research subjects research subjects, whether children or adults, to physical or emotional stress *as part of an investigation*.

b. When the possibility of injurious aftereffects exists, research is conducted only when the subjects or the responsible agents are fully informed of this possibility and agree to participate nevertheless.

c. The psychologist seriously considers the possibility harmful aftereffects and avoids, or removes them as soon as permitted by the design of the experiment.

d. A psychologist using animals in research adheres to the provisions of the Rules Regarding Animals, drawn up by the Committee on Precautions in Animal Experimentation and adopted by the American Psychological Association.

e. Investigations of human subjects using experimental drugs (for example, hallucinogenic, psychotomimetic, psychedelic, or similar substances) should be conducted only in such settings as clinics, hospitals, or research facilities maintaining appropriate safeguards for the subjects.

Table 10: APA Ethical Standards 1968

Further reading:

The National Institutes of Heath, O. o. H. S. R. (2009). "Nuremberg Code." Retrieved 10/2/2009, 2009, from http://ohsr.od.nih.gov/guidelines/nuremberg.html.

World Medical Organization. Declaration of Helsinki. British Medical Journal (7 December) 1996;313(7070):1448-1449.

The APA Standards are available from the American Psychologist:

1953 is available as a book, and is held by some libraries

Subsequent standards were published in the *American Psychologist*:

1958 *American Psychologist* (13) p. 268-271

1963 *American Psychologist* (18) p. 56-60

1968 *American Psychologist* (23) p. 357-361

For a historical overview, see:

Fisher, C. B. (2009). Decoding the ethics code : a practical guide for psychologists. Los Angeles, Sage Publications.

Brief history of definitions of 'Psychology'

Pre-history of Psychology:

The scientific investigation into the human mind and/or human behavior begins almost simultaneously with science itself. We must then begin with the followers of Francis Bacon, and trace the idea that the mind is open to empirical inquiry through the empiricists into the present day.

Bacon, who we now credit with establishing 'The Scientific Method,' argued that the human mind tended to distort reality in regular, systematic ways, which he called 'idols.'[27] In order to understand reality, we must then give up on the idea that a single person can discover the truth on his or her own. In order to learn about the world, we need to work together, collaboratively creating a "*natural* and *experimental* history" (Bk 2, Ch X, p 109) of the phenomenon. As working collaboratively can lead to confusion and misunderstanding, we organize that natural and experimental history into a series of tables: including instances of the phenomenon's presence, closely related instances in which the phenomenon is absent, instances in which the phenomenon occurs in degrees or in comparison, and instances of exclusion of the phenomenon. Once these tables are built, we review them and create what Bacon called a 'first harvest' of the phenomenon. In short, this is a generalized axiom unifying the phenomenon yet held close to observation. Once that first axiom is established, we return to the tables, highlighting privileged instances which are further classified as solitary, transitory, revealing, etc.[28] These, then can be used to further refine the first harvest into further, more careful axioms.

Bacon profoundly influenced Elizabethan England. His empirical method sparked inquiry in almost all areas of human knowledge, and formed the basis for what we now call the 'scientific revolution' or the 'enlightenment.' His influence on psychology and psychiatry is actually far more direct than most assume. Late in his life, Bacon became good friends with the Philosopher Thomas Hobbes. In fact, Hobbes founded a Baconian reading group in Oxford, which is the forebearer of the Royal Society—the world's oldest scientific body.

Thomas Hobbes, who is most widely known for his initiation of social-contract theory in defense of absolute monarchy, opens his master work *Leviathan* with this bold claim:

> Nature (the art whereby God hath made and governs the world) is by the *art* of man, as in many other things, so in this also imitated, that it can make an artificial animal. For seeing life is but a

27 The four idols distinguished by Bacon are the idols of the tribe, the cave, the marketplace and the theater. The idols of the tribe are those which we all share, as a function of our biology. They "have their origin either in the regularity of the substance of the human spirit; or in its prejudices; or in its limitations; or in its restless movement; or in the influence of the emotions; or in the limited powers of the senses; or in the mode of impression" (LII)

The idols of the cave are those of an individual. They have their origin in "the individual nature of each man's mind and body; and also in his education, way of life and chance events." (LIII)

The idols of the marketplace are those of miscommunication and misunderstanding. As Bacon says "For men believe that their reason controls words. But it is also true that words retort and turn their force back upon the understanding; and this has rendered philosophy and the science sophistic and unproductive." (LIX)

The idols of the theater are those of intellectual 'showmanship.' They are "not innate or stealthily slipped into the understanding; they are openly introduced and accepted on the basis of fairytale theories and mistaken rules of proof." (LXI)

All quotes from Bacon & Jardin (2000). Roman numerals indicate Aphorism number.

28 Bacon lists 27 different types of these 'privileged instances' in Book 2 of his *Novum Organon*.

> motion of limbs, the beginning whereof is in some principal part within, why may we not say that all *automata* (engines that move themselves by springs and wheels as doth a watch) have an artificial life? For what is the *heart*, but a *spring*; and the *nerves*, but so many *strings*; and the *joints*, but so many *wheels*, giving motion to the whole body such was was intended by the artificer? (Ch 1, S1)

Just as his famous social-political philosophy posited universal laws of human conduct, Hobbes believed that the human mind followed to universal laws which were deducible through reason. To discover these laws, one must look at what separates humans (who have minds) from animals (who are supposed to not). According to Hobbes, humans surpass animals insofar as they are "apt to inquire the consequences of it, and what effects he could do with it." In addition, humans can "can by words reduce the consequences he finds to general rules, called theorems, or aphorisms; that is, he can reason, or reckon, not only in number, but in all other things whereof one may be added unto or subtracted from another." (Ch V, S6).

Thus we have the beginning of psychology: human minds work by the process of deducing consequences and abstracting from particular experiences to general rules through basic logical functions. You may recall from the previous section that Hobbes was, in part, responding to Descartes' argument that the mind must be separate and distinct from the human body.

Descartes' most famous argument for mind-body dualism asks us to doubt all that cannot be known with certainty, and then concludes that one cannot doubt that one is doubting; hence thinking; hence one cannot doubt that one is a thinking thing. This famous argument (called the "cogito" is contained the First Meditation.[29] But Descartes offers a much more interesting and influential argument in a number of other writings. The argument appears twice in *The Discourse on Methods*, first in part 3:

> ...if there were such machines having the organs and the shape of a monkey or of some other animal that lacked reason, we would have no way of recognizing that they were not entirely of the same nature as these animals; where as, if there were any such machines that bore a resemblance to our bodies and imitated our actions as far as this is practically feasible, we would always have two very certain means of recognizing that they were not at all, for that reason, true men. The first is that they could never use words or other signs, or put them together as we do in order to declare our thoughts to others. For one can well conceive of a machine being so made that it utters words, and even that it utters words appropriate to the bodily actions that will cause some change in its organs... But it could not arrange its words differently so as to respond to the sense of all that will be said in its presence, as even the dullest men can do. (*Discourse*, Ch 3, 1637)

And then again in part 5:

> [in looking at the body] I found there precisely all those things that can be in us without our thinking about them, and hence, without our soul's contributing to them, that is to say, that part distinct from the body of which it has been said previously that its nature is only to think. And these are all the same features in which one can say that animals lacking reason resemble us. But I could not on that account find there any of those functions, which, being dependent on thought, are the only ones that belong to us as men, although I did find them all later on, once I had supposed God created a rational soul and joined it to this body in particular manner that I described. (*Discourse*, Ch 5, 1637)

The same point appears in his *Letter to Henry More*:

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29 If you aren't familiar with the argument, you can read it, in Latin English and French, here: http://www.wright.edu/cola/descartes/

> Nevertheless it has never been observed that any brute beast arrived at such perfection that it could use true speech, that is, that it indicated by words or signs something that can be ascribed to thought alone, and not to a natural impulse. For speech is the only certain sign of thought concealed in the body, and all men, even the stupidest and most insane, make use of it, but not any brute. Therefore, this can be taken to be the true differentia between man and brutes (*Reply to Henry More*, S5)

In these passages, Descartes ascribes to humans alone the ability to use language and conceive of abstract ideas. He then finds that these abilities cannot be the products of material, finite reality. As experience is limited to finite reality, ideas of things that are not finite must be 'ascribed to thought alone.' Thus, these ideas must be innate to the mind and not based on experience. It follows that that these distinctly human abilities are the products of a non-material infinite reality. In short, the argument is this:

1. Humans alone use language and conceive of abstract entities (i.e. 'infinity').
2. No material mechanism could ever use language or conceive of an abstract entity.
3. Therefore, humans cannot just be not material mechanism

Hobbes' assertion that human beings could be imitated through material mechanisms runs directly counter to Descartes' argument. But insofar it is only an assertion—a hypothesis—it needs empirical demonstration. To establish Hobbes' contention and meet Descartes' challenge scientifically, Hobbes must show a physical machine could, through experience, develop both the ability to speak rationally and conceive of abstract entities that are not clearly the product of experience (such as 'infinity').

It is easy to see how the process of 'addition and subtraction' could produce a concept of infinity. But it is hard to see how simple arithmetic could produce a machine that could “arrange its words differently so as to respond to the sense of all that will be said in its presence, as even the dullest men can do.”

Locke's famous *Essay on Human Understanding* opens with a fifty-eight page argument against the idea of innate ideas. Locke picks up the project where Hobbes left off, adding 'reflection' (what we now call 'introspection') as an additional source of ideas, but leaving the other main theses in place. For Locke, like for Hobbes , the mind is populated with ideas that originate in experience. We come to understand our minds, and how our minds occasionally lead us astray, by understanding the mental mechanisms that produce ideas from sensation. Abstract ideas like 'infinity' are the products of a process of abstraction:

> Finite then, and infinite, being by the mind looked on as modifications of expansion and duration, the next thing to be considered, is, -How the mind comes by them. As for the idea of the finite, there is no great difficulty...Every one that has an idea of any stated lengths of space, as a foot, finds that he can repeat that idea; and joining it to the former, make the idea of two feet; and by the addition of a third, three feet; and so on, without every coming to an end of his additions, whether of the same idea of a foot, or, if he pleases, of doubling it, or any idea he has of any length, as a mile, or diameter of the earth, or of the orbis magnus...This, I think, is the way whereby the mind gets the idea of infinite space. --Essay Book 2, Ch17

But like Hobbes, Locke fails to explain how language structure could be produced by a finite mechanism.

At the same time, Antione Arnaud, a fervent supporter of Descartes' theory of mind, was developing a

school of thought in France which we now call the 'Port-Royalist' movement. The Port-Royalists held that the structure of grammar was universal for humans and could be reduced to the laws of logic. Unlike the empiricists Hobbes and Locke, however, the Port-Royalists, who including the great logician and mathematician Pascal, were dualists and theists. For the Port-Royalists, thought was different from language, although we tend to think in language through force of habit. Pure thought, both in its content and its structure, becomes imperfect when 'translated' into an imperfect spoken language. A perfect language, and perfect grammar, would be possible if each word signified unequivocally a single simple idea, and the grammar of speech matched perfectly the 'grammar of thought.'

David Hume, the great Scottish Empiricist took the argument against innate ideas and married it to the idea of a universal structure of the mind. First, by extending the argument against innateness beyond the concept of the infinite:

> The idea of God, as meaning an infinitely intelligent, wise, and good Being, arises from reflecting on the operations of our own mind, and augmenting, without limit, those qualities of goodness and wisdom. --Enquiry, S2 P14

And second, by advancing the thesis that principles of connection between ideas in the mind were regular and hence subject to empirical investigation. In fact, he posited three: RESEMBLANCE, CONTIGUITY in time or place and CAUSE and EFFECT. (Treatise, Part 1, S IV). This thesis was supported by the universality of language structures:

> It is evident that there is a principle of connexion between the different thoughts or ideas of the mind, and that, in the appearance to the memory or imagination, they introduce each other with a certain degree of method or regularity... ...Amoung different languages, even where we cannot suspect the least connexion or communication, it is found, that the words, expressive of ideas, the most compounded, do yet nearly correspond to each other: a certain proof that the simple ideas, comprehended in the compound ones, were bound together by some universal principle, which had an equal influence on all mankind.

Thus, with Hume, the empirical study of the mind begins in earnest, although 'psychology' was not distinguished from 'natural philosophy' for another century.

It is important to point out here that for these thinkers, the objects of study are *ideas*. The central claim is that the relationships between ideas themselves, whether they be causal or grammatical, are regular and subject to law-like generalization.[30] That central claim unites them with early psychology. But as we will see, is the challenged in the Behaviorist revolution.

Birth – German Physiological Psychology in the 1880s-1890s.

In about 1847, four friends, three of them students of Johannes Müller (1801-1858), gathered together in Berlin to swear an oath dedicating themselves to undermining vitalism: the theory that all living entities shared a special irreducible 'vital force.' They committed themselves to the view that:

> No other forces than the common physical-chemical ones are active within the organism. In those cases which cannot at the time be explained by these forces one has either to find the specific way or form of their action by means of the physical –mathematical method or assume

30 There are many instances of this claim in the history of psychology: see, e.g. Wundt, 1876 (p. 175)

> new forces equal in dignity to the chemical-physical forces inherent in matter, reducible to the force of attraction and repulsion. (Ernst Jones, p. 40)

These four friends: Hermann von Helmholtz (1821-1894), Carl Ludwig (1816-1895), Emil du Bois-Reymond (1818-1896) and Ernst Wilhelm von Brücke (1819-1892), along with Hermann Lotze (1817-1891) and his student Gustav Fechner (1801-1887), came to dominate the next generation of psychologist and psychiatrists: Helmholtz hired Christine Ladd-Franklin as his assistant, who went on to be one of the first woman member of the APA, and the first woman to hold a professorship at the University of Chicago. Freud studied under Brücke; Pavlov under Ludwig and Wundt under du Bois-Reymond. Wundt went on to work in Helmholtz's lab after Ladd-Franklin returned to America.[31]

While all four of these thinkers had a profound influence on the founding and development of psychology as a discipline, I'll focus my attention for the moment on Helmholtz. Helmholtz was one of the great scientific minds of his era. Not only is he now recognized as a godfather of experimental psychology, he is widely respected in the history or Optics, and is, in many ways, the father of ophthalmology, having invented the ophthalmoscope.

His professor, Müller, held that nerves had 'specific sense energies' naturally: our sensory system had certain *a priori* assumptions about time and space literally built into them, making sensory experience like binocular vision possible. Students familiar with the history of philosophy may recognize this as a position influenced by Kantian psychology.

Helmholtz, however, posited that our mental system as a whole adjusted itself through a process of 'unconscious inference' to represent the external world. Thus, the contents of our experiences were merely 'signs' or 'indicators' of the objects in the world that our experiences represent. The sensory system automatically and unconsciously recovered the world through the complex information it has available. The unconscious inferences that produce stable representations of the world are not transparent to our experience, but neither are they innate. They are, in short, trained through experience with the regularities of the world itself. Thus, the process of sensation was *learned*, not biologically determined. While contemporary psychophysics has advanced greatly since 1850, the basic model of how perception works in psychology today is Helmholtz's.

Fechner

On the morning of 22nd of October, 1850, a young physiologist named Gustav Theodor Fechner lay in bed, puzzled by the relationship between the intensity of a psychological experience (i.e. hearing a sound, measured by introspection) and the intensity of the physical stimulus (i.e. the amplitude of the air vibrations). On that morning, it occurred to him that the relative increase in the physical stimulus

31 I can illustrate some of the differences in theoretical approach here with the example of color perception: Helmholtz posited that there were three basic primary colors: red, green and purple. Ladd-Franklin argued that purple perceptually appeared to be (i.e. 'looked like') a mixture of red and blue, whereas yellow appeared to be primary. Thus, she theorized, there are in fact four psychologically primary colors: red, green, blue and yellow. Helmholtz responded (quoted in Hering) that one could not draw conclusions about facts of physiology from direct psychological experience (i.e. introspection), therefore Ladd-Franklin's observation had no bearing on the science of psychology. While Ladd-Franklin's point seems obvious and definitive against Helmholtz's theory, it was widely rejected, on the basis of the unreliability of introspective reports and observations, in favor of the physiological reductionism of Helmholtz. In fact, it wasn't until a plausible mathematical model based on Ladd-Franklin's observation was proposed by Jameson and Hurvich in 1957 that the psychological community rejected Helmholtz's theory in favor of Ladd-Franklin's.

might correspond to the relative increase in the psychological experience. It took him a decade to prepare the idea for publication, which he presented as 'Weber's law':

$$dp = k\frac{dS}{S}$$

where *dp* is the change in the psychological experience, *k* is a constant to be determined experimentally, *dS* is the change in the stimulus and *S* is the stimulus. He added to this the idea that the physical stimulus must break a certain threshold to be perceivable at all to derive what is now known as 'Fechner's law':

$$p = k\log\frac{S}{S_0}$$

Wehere S_0 is the threshold under which the stimulus is not perceived.

Fechner's law is the first mathematical law (some might say 'model') in psychology. It posits a specific relationship between a psychological entity (sensation) and a physical entity (the stimulus). Unlike his predecessors who had contented themselves with discovering the relationships between ideas in a rather imprecise way, Fechner had both bridged the divide between the psychological and the physical, and given that bridge the precision of Calculus.

Fechner's book, *Elements of Psychophysics*, published in 1860 had a profound effect in both German and England. Physiologists now had a model of precision for which they could strive. And psychologists had a model of understanding the relationships between the physical and the psychological. Most importantly, however, the book inspired Hermann Ebbinghaus to begin studying memory. But that story will have to be left to another time.

Wundt

Today, we generally consider Wilhem Wundt's lab at Leipzig to be the first true psychological laboratory. Helmholtz's lab, it is argued, was a lab of physiology, not psychology. Wundt, unlike Helmholtz, believed that the causal relations governing consciousness were of a different kind than those governing the 'external' world. And it was the challenge of psychology to explain those regularities.

Wundt was, however, a student of the physiologist Helmholtz. Thus, a proper explanation of the laws of psychology would make use of the properties of the central nervous system. In Wundt's own words:

> Physiology and psychology cover, between them, the field of vital phenomena; they deal with the facts of life at large, and in particular with the facts of human life. Physiology is concerned with all those phenomena of life that present themselves to us in sense perception as bodily processes, and accordingly form part of that total environment which we name the external world. **Psychology, on the other hand, seeks to give account of the interconnection of processes which are evinced by our own consciousness**, or which we infer from such manifestations of the bodily life in other creatures as indicate the presence of a consciousness similar to our own. (1902, p. 1)

Shortly thereafter, he asserts that Psychology is "**the investigation of conscious process in the modes of connection peculiar to them**." (1902, p. 2) As consciousness is unique in the world, it can only, then, be approached with the investigative tools unique to consciousness: direct experience of

consciousness by ourselves of inferred in others on the basis of direct observation and analogy.

This does not mean, however, that a science of psychology is purely introspective. On the contrary, Wundt proposed a 'physiological psychology': a theory of conscious experience informed by our physiological understanding of the brain, what Wundt calls the 'bodily substrate of mental life.'

The nervous system was thought to be made up of a 'central substance' that maintained an equilibrium and 'nerve-fibres' that connected cells together. This 'central stuff' was understood not to just transmit information, but to modify it in one of two ways: first, if it were exposed to repeated stimulus, the amount of energy needed to produce a response would decrease, and second, in some cases, it could invert the signal into it's opposite (i.e. from 'x more than equilibrium' to 'x less than equilibrium'). Wundt sought to reduce the four standard 'Laws of Association' of ideas—similarity, contrast, spatial and temporal contiguity— to simple 'internal connection', as 'contrast' is a completion of an idea in the same way 'similarity' is; and contiguity in space and time are external, not internal, relationships. Ideas tend to produce their contrasting idea, rather than ideas which are similar, when they are accompanied by strong feelings, as all feelings have a kind of 'elasticity' to them, always presenting with its opposite feeling implicitly.

'Internal connection,' is then is explained by what Wundt called 'central innervation,' or the properties of the nervous system. It is a fundamental law of neuroscience, even then, that 'neurons that wire together fire together.' For Wundt and his followers, the similarity and contrast of ideas was explainable by the excitation and inhibition properties of these nerves.

Pavlov

Ivan Pavlov was, like the others in this section, a physiologist first. His interest in psychology was, for the most part, tangential to his work in physiology. Between 1891 and 1900, Pavlov conducted a series of experiments on salivation in dogs. His primary interest at this time was to explain why dogs salivated when presented with food at a distance. The common-sense psychological explanation, of course, is that the dog *wants* the food. More technically, early psychologists would have said the dog *associates* food and saliva (even it it is unconscious). But those are not an acceptable physiological explanations, and they wouldn't satisfy Pavlov.

Using a recently invented apparatus, Pavlov was able to measure the amount of saliva dogs produced in response to a food stimulus. After a number of experiments, Pavlov noticed that the dogs were salivating without any food present. It occurred to him that in these case, the dogs' salivation response might be responding to the lab techs, rather than food itself. To test this hypothesis, he presented food to a dog and simultaneously rang a bell. After repeated exposures to this combination of stimuli, Pavlov removed the food, leaving just the bell. He found that the dogs still salivated.

Thus, Pavlov discovered what came to be called '*classical conditioning'*: to train a behavior, one presents a new stimulus (the conditioned stimulus) concurrently with the stimulus that 'naturally' produces the desired behavior (the unconditioned stimulus). After repeated training, the desired behavior (conditional response) will occur with the new (conditioned) stimulus, without the presence of the original, 'natural,' unconditioned stimulus.

Pavlov's primary application of his findings were to the nervous system as a whole as well as “heart, digestive tract and other organs in the higher animals” (lecture 23), he didn't shy away from suggesting

that it could be used to explain the seemingly involuntary habitual actions of those deemed 'psychotic' or 'neurotic.' Conditional responses were, however, breakable, or in behaviorists terms 'extinguishable,' if one conditioned a new stimulus in place of the existing stimulus-response association.

Pavlov placed particular emphasis on the idea that his experiments were purely objective and not open to observer influence, such as the experiments of the introspectivists. In fact, he closes his 1927 lectures with the bold claim that:

> all the experiments, those of other workers as well as our own, which have set as their object a purely physiological interpretation of the activity of the higher nervous system, I regard as being in the nature only of a preliminary inquiry, which has however, I fully believe, entirely justified its inception. We have indisputably the right to claim that our investigation of this extraordinarily complex field has followed the right direction, and that, although not a near, nevertheless a complete, success awaits it.

The importance of Pavlov's theorizing should be obvious at this point: classical conditioning provided a physiological law-like relationship that could take the place of (provide the bodily substrate for) *association* of ideas. And it provides a mechanisms for creating, intervening in, or destroying those associations—which no previous theory had managed to do thus far.[32]

American Psychology: William James and the function of consciousness

During this period of profound growth in psychology in Germany, American Universities were not institutions of Research, but institutions of liberal education. Starting in 1876 that started to change, when Johns Hopkins University was founded in Baltimore with the explicit mission of "The encouragement of research; the encouragement of young men; the advancement of individual scholars, who by their excellence will advance the sciences they pursue, and the society where they dwell."

Daniel Coit Gilman, the first President of Johns Hopkins admired the German university.[33] Of the 53 men to the faculty of Hopkins by 1884, nearly all had been educated at German Universities, and 13 held what was then a German degree, the PhD Josiah Royce, progenitor of American Hegelianism, graduated from Hopkins in 1878. The few exceptions to this rule were the eminent American pragmatists John Dewey and C.S. Peirce.

What followed can only be described as an explosion in research universities in America. Clark University was founded in 1887 and the University of Chicago in 1892. In 1860, no PhDs were awarded in America. By 1890, 164 PhDs had been given.

I mention all of this because the German understanding of the science of the mind—specifically that of Helmholtz and his anti-vitalists—became synonymous with the understanding of research in Psychology during this period. In short, if one approached the mind in some fashion other than this experimental tradition, it simply was viewed as not contributing to research, and hence, was not

32 I am skipping, for the sake of space, the fascinating history of British psychology during this period, as it adapted associationism to the new physiology. See Daston, L.J. (1978). "British Response to Psycho-Physiology 1860-1900." *The History of Science Society* 69 (2) p. 192-208

33 And the 'German Mind' apparently: "The thoroughness of the German mind, its desire for perfection in every detail, and its philosophical aptitudes are well illustrated by the controversies now in vogue in the land of universities."(http://webapps.jhu.edu/jhuniverse/information_about_hopkins/about_jhu/daniel_coit_gilman/)

considered suitable for graduate instruction. More often that not, advocates for views not in accordance with physiological-psychology were restricted to departments of philosophy or anthropology. A particularly good example of this kind of reasoning is G. Stanley Hall's 1879 paper 'Philosophy in the United States,' in which he laments American Philosophy as little more than moral training in the Christian tradition.

In the middle of this storm sits William James. James, in many ways, bridges the divide between the older approach to liberal education and the new university approach to research. James' accredits his interest in Psychology to his time spent in Germany, yet his entire career was spent teaching at the traditional college: Harvard. He advocated for experimentalists, but appeared to perform no psychological experiences himself. His students are the major figures in this first generation of research institutions and Psychology departments, including G. Stanley Hall; yet his position was always in the department of Philosophy, something he appeared to have insisted upon.[34] James had a life-long friendship with the two Hopkins pragmatists, C.S. Peirce and John Dewey, who went on to supervise Christine Ladd-Franklin at Hopkins.[35] Moreover, James was in frequent contact with the early British philosophers of mind including Alexander Bain, Herbert Spencer and John Sully.

In 1878 James contracted with Henry Holt and company to write a textbook for this nascent field of psychology. The resultant book *The Principles of Psychology* is a classic in the field. In it, James defines **psychology as "the science of mental life, both of its phenomena and of their conditions"** (1890, p. 1) and identified introspection as its chief method.

James held that consciousness (which was the central phenomenon to be studied by psychology) was like stream, encompassing much more than mere 'associations' of ideas. The associationists who followed Hume isolated experiences from their context, and provided a overly simplistic account. The object of study of psychology—the relations, tendencies and emotions that make up the stream of consciousness—are directly experienced in introspection, and form the basis of genuine scientific inquiry into the mind.

James' fellow pragmatists Peirce and Dewey went on to construct a theory of psychology focused on the *functions* of mental states, what was called ultimately called "The Chicago School." Dewey argued that explanations of human activity that focused merely on the 'stimulus' and 'response' or 'reflex arcs' were inadequate characterizations of conscious states. In order to truly characterize, and then study, conscious states, science must take into account the ***function*** or *end* of those states. In his words:

> the distinction of sensation and movement as stimulus and response respectively is not a distinction which can be regarded as descriptive of anything which holds of psychical events or existences as such. The only events to which the terms stimulus and response can be descriptively applied are to minor acts serving by their respective positions to the maintenance of some organized coördination. The conscious stimulus or sensation, and the conscious response or motion, have a special genesis or motivation, and a special end or function. The reflex arc theory, by neglecting, by abstracting from, this genesis and this function gives us one disjointed part of a process as if it were the whole. (1896, p. 370)

34 See Ch. V of Miller (1962)

35(Miller, 1962, p. 66) argues that "If Watson had not been so inept as a philosopher, he might have offered behaviorism as a pragmatic theory of mind, comparable to Peirce's pragmatic theory of meaning, James' pragmatic theory of truth, and Dewey's pragmatic theory of value."

Functional psychology thus emphasizes the role mental entities play in an organisms behavior, not what those ideas represent, or the 'content' of those ideas. (Dewey, 1903, p. 114)

Ebbinghaus and the unreliability of introspection

In or about 1878, inspired by Fechner's stunning results investigating sensation, Hermann Ebbinghaus started experimenting with memory. Ebbinghaus sought, like all of his contemporaries, to understand the association of ideas. But he was worried, rightfully so, that using existing words or concepts in an experimental design would allow for the individual subject's previous experience with those words or concepts to influence the result of the experience. Thus, to isolate the association of ideas from any prior influence, he created long lists of nonsense syllables (VAM, ZOK, etc.) and set about memorizing them. He then precisely measured the number of repetitions or amount of time it took to repeat list perfectly, something he called *trials to criterion.* As it turns out, the longer the list, the more time, or trials, it takes to memorize it. But that wasn't all: he further tested the process of forgetting.

After some arbitrary period, Ebbinghaus would return to the same list and restart the entire process. If it took him the same number of repetitions to memorize the list to perfection, his forgetting would have been complete. What Ebbinghaus found was that *even if* he could not introspectively recall items on the list after some time, it took fewer repetitions for him to learn the list to the criterion or perfection. Thus, a decade before Freud made it fashionable to believe in the unconscious, Ebbinghaus had demonstrated empirically that the mind could retain information that it could not bring to subjective, introspective awareness.

This discovery was a bombshell to the introspective protocols of Wundt and James. Pavlov had shown that 'unconscious' behaviors like salivation could be trained to a stimulus without the intervention of introspection, but Ebbinghaus showed that a paradigmatic psychological phenomenon—memory—was subject to the same training. While Ebbinghaus' work was originally published in 1885 in German, it Is little coincidence that it was translated into English in 1913, the same year Watson declared the beginning of the Behaviorist revolution.

First Revolution: Behaviorism

John B. Watson (1878-1958) opens his 1913 manifesto “Psychology as the Behaviorist Views it.” with the bold claim that **Psychology**

> **“is a purely objective branch of natural science.** Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation.” (1913, p. 158)

In his 1929 debate with the Harvard professor and physiological-psychologist William MacDougall (1871-1938), Watson anticipated a common criticism of behaviorism: that it cannot explain our rich interior mental life—what William James called the “stream of consciousness.” Watson responded that if we were to take the inner mental life as the object of study, rather than observable behaviors, there would be “as many analyses as there are individual psychologists. There is no element of control. There is no way of experimentally attaching and solving psychological problems and standardizing methods.”

Thus, psychologists must limit themselves to "things that can be observed, and formulate laws concerning only the observed things." (1929)

According to Watson, 'observable things' includes only "what the organism says or does," which must then be described "in terms of 'stimulus and response.'" By 'stimulus,' Watson means "any object in the general environment or any change in the physiological condition of the animal, such as the change we get when we keep an animal from sex activity, when we keep it from feeding, when we keep it from building a nest. By response we mean that system of organized activity that we see emphasized anywhere in any kind of animal, as building a skyscraper, drawing plans, having babies, writing books, and the like."

Watson's behaviorism explains the behavior of all organisms (not just humans) by producing laws of correlation between stimuli and responses. This was a massive extension of the field of psychology, as animals and babies were not able to give introspective reports. Following Pavlov, Watson contends that an organism initially engages is some random behavior (say, a baby squirming) in response to a stimulus. This 'unconditioned response' may be biologically determined, but it is not yet a law of psychology. To 'condition' a response, one presents the unconditioned stimulus along with a new stimulus repeatedly. Over time, the organism responds to the new, conditioned stimulus with the original unconditioned response. Thus, to explain any given behavior, one must find the conditioned stimulus that is now correlated with the conditioned response.

MacDougall, among others, challenged Watson to explain "thinking" or "thought" in terms of stimulus and response. Watson does not shy away from this challenge:

> "The increasing dominance of language habits in the behavior of the developing child leads naturally over into the behaviorist's conception of thinking. The behaviorist makes no mystery of thinking. He holds that thinking is behavior, is motor organization, just like tennis playing or golf or any other form of muscular activity. But what kind of muscular activity? The muscular activity that he uses in talking. Thinking is merely talking, but talking with concealed musculature."

According to Watson, a child initiates verbal behavior by talking aloud to and about his surroundings. As that behavior is negatively reinforced, it changes to mumbling to oneself, and ultimately to keeping one's lips closed. It follows that thinking is not an activity of the mind/brain alone, but a kinesthetic experience of the entire organism—in short, a behavior. Words are, in Watson's view "the conditioned substitutes for our world of objects and acts. Thinking is a device for manipulating the world of objects when those objects are not present to the senses."

Maturation: Tolman and Hull[36]

During the middle of the 20th century, behaviorism in American divided roughly into two camps: Tolman and Hull. Edward Chace Tolman (1886 – 1959) initiated the 'war' in 1922 by criticizing Watson. Tolman argued that Watson's belief that all human behavior could be explained in terms of "muscle contraction and grand secretion, as such, would not be behaviorism at all but a mere physiology." (1922, p. 45)

36 In the interests of conciseness, I am skipping over the fascinating and under-rated history of Gestalt psychology. I do this with a heavy heart, as it is one of my favorite topics in the history of psychology. Characters who wish to engage with the tradition of behaviorism, however, should pay careful attention to Wolfgang Köhler's presidential address, included in the appendix, for the Gestalt concerns about this period in American Psychology's history.

For Tolman, a behavioristic science must answer three major problems: "(1), given the stimulating agency, determining the behavior-cues (2), given the behavior-cues, determining the behavior-object and (3), given the behavior-object, determining the behavior-act." (p. 51). (1) is the problem of psychophysics, which is adequately solved by Fechner. (2) is accessible, with rewording, by classical conditioning. (3) is the "important problem of *motive*." A proper science of behavior must answer all three of these problems. Doing so, Tolman contends, would allow the behaviorist to understand and better elucidate introspection.

Opposing Tolman, Clark Hull (1884 – 1952) contended that in order for a postulate or theorem to be "truly scientific," it must "take the form of specific statements of the outcome of concrete experimentations or observations."[37] Simple classification of behavior are not, themselves, scientific. But neither is talk of such things as *motives*. Scientific explanations must make use of clear, unambiguous terms that refer to observable behavior. Everything else is simply not considered to be 'science.' Hull contends that psychology should produce mathematical equations that would specify precisely all the relationships between variables that account for an organisms behavior. The specific behavior of a given organism would be an instance of these universal mathematical generalizations.

Hull's primary contribution to behaviorism is the thesis that that the when a given stimulus has the effect of reducing a biological need, the connection between the stimulus and the response is strengthened automatically. While that statement may seem like a commonsense position today (food given as a reward, e.g.), the important part of it in 1935 was the word of 'automatically.' Contrary to the introspectivists or even commonsense, one need not be aware of the satiation of one's physical desires in order to strengthen the association between the conditioned stimulus and the conditional response. In fact, most conditioned associations are *not* accessible to introspective awareness.

Methodologically, Hull's insistence on the mathematical-deductive structure of theory led to a cadre of young psychologists who were able to represent complex relationships between variables mathematically. Many members of that generation—including Roger Shepard—ended up at Stanford, ultimately providing much of the theory of information processing that allowed the cognitivists to advance sophisticated mathematical and computer models of cognitive states.

In response to Hull, Tolman argued that simple stimulus-response connections were insufficient to explain behavior: specifically rats running a maze for a food reward. In his famous 1948 paper "Cognitive Maps in Rats and Men," Tolman presented evidence that showed rats that were allowed to wander around a maze randomly before the beginning of training period learned the maze more quickly than rats that began training without prior exposure to the maze. Tolman argued that the best explanation for this phenomenon—and our general intuition about why rats appear to pause before beginning down a specific course—is that the rats have built up a 'cognitive map' of the maze through their random explorations. He goes so far as to suggest that the rats had the ability to learn through 'Vicarious Trial and Error,' or 'imagining' what would happen if they responded to a particular stimulus. For Tolman, this was:

37 This is only one of Hull's four criteria. The other are: (1) The definitions and postulates of a scientific system should be stated in a clear and unambiguous manner, they should be consistent with one another, and they should be of such a nature that they permit rigorous deductions. (2) The labor of deducing the potential implications of the postulates of a system should be performed with meticulous care and exhibited, preferably step by step and in full detail. It is these deductions which constitute the substance of a system. (4) The theorems so deduced which concern phenomena not already known must be submitted to carefully controlled experiments. The outcome of these critical experiments, as well as all previous ones, must agree with the corresponding theorems making up the system.

> evidence that in the critical stages-whether in the first picking up of the instructions or in the later making sure of which stimulus is which-the animal's activity is not just one of responding passively to discrete stimuli, but rather one of the active selecting and comparing of stimuli. (1948, p. 200)

One of Tolman's students, Ritchie, constructed further experiments to test the capacity of the rats' cognitive maps. By starting rats on the far side of the laboratory, Ritchie found that the rats tended to navigate not by the direct path to the reward, but to the walls of the room itself. Thus, Tolman contends, the rats' cognitive maps were 'strip-like' and 'narrow.'

It is this concept—the breadth or narrowness of cognitive maps—that allows Tolman to extrapolate to the human mind, going so far to suggest that we may interpret the various psychological mechanisms posited by psychoanalysts as "narrowings of our cognitive maps due to too strong motivations or too intense frustration." Thus, racists, sexists, pathological patriots, etc. are individuals with too narrow a 'cognitive map.' A healthy mind—and a well educated person—is one who can use reason, i.e. "broad cognitive maps" to

> "look before and after, learning to see that there are often round-about and safer paths to their quite proper goals-learn, that is, to realize that the well-beings of White and of Negro, of Catholic and Protestant, of Christian and of Jew, of American and Russian (and even of males and females) are mutually interdependent." (208)

Radical Behaviorism

Starting in 1938, Behaviorism underwent a radical transformation. In that year, Burrhus Frederic Skinner (1904 – 1990) published *The Behavior of Organisms: An Experimental Analysis,* in which he introduced the idea of *operant conditioning*.[38] Skinner's insight was not entirely without precedent, but rather built upon the concept of 'instrumental conditioning' originally introduced by Edward Thorndike (1874-1949).

According to what is now called 'Thorndike's law of effect', if a response is followed closely by a pleasurable experience, it is more likely to be associated with the stimulus than if it is followed by a unpleasurable or neutral experience. Skinner turned this idea into the central explanatory mechanism of behaviorism: rather than the conditioned stimulus occurring simultaneously with the unconditioned stimulus, the conditioning stimulus occurs immediately after the desired behavior as a consequence of the desired behavior. In his own words:

> Operant behavior usually affects the environment and generates stimuli which is "feed back" to the organism. Some feedback may have the effects identified by the layman as reward or punishment. Any consequence of behavior which is rewarding or, more technically, reinforcing increases the probability of further responding. (1957 / 1972, p. 129)

By introducing the idea of *reinforcement* of a behavior as whatever makes it more likely that that behavior will occur, Skinner was able to undercut Tolman's (and MacDougall's before him) insistence that a *purpose* or *goal* was required to explain the behavior of animals.

As a boy, Skinner was fascinated with mechanisms. Legend has it that he even built a steam cannon out of a discarded water boiler. Extraordinarily intelligent, Skinner found Francis Bacon's works at about fourteen, and became enamored with the idea that Bacon may have written Shakespeare's plays.

38 See the section on behaviorism in the 'Public Character info' section for more on the difference between operant and classical conditioning.

He majored in English and literature at Hamilton College, where he became famous for elaborate practical jokes. During his time at Hamilton, he expressed significant interest in the authors Joyce and Proust – but also physiological psychologists Pavlov and Jacques Loeb. Legend has it that he met Robert Frost, who encouraged him to become a writer. After that did not pan out, he returned to behaviorism through the work of Bertrand Russell – specifically Russell's comparison between 'reflex' and 'force' in physics.[39]

Inspired by Pavlov's maxim "control the environment and you will see order in behavior," as well as his passion for inventing mechanisms, Skinner began to create machines that would control behavior of an organism by automatically rewarding the desired behavior and punishing behavior that was not desired.

These successes led Skinner to hypothesize that all animal behavior—including human behavior—resulted from such forces. He delineated four types of operant conditioning: *positive reinforcement*, *negative reinforcement*, *punishment* and *extinction*, which he studied with mathematical precision. Skinner shifted behaviorism's emphasis from reflexes to regularities of the whole organism, moving from the causal link between stimulus and response to the relationship between the response and its reinforcement.

According to Skinner, this form of behaviorism was the inevitable development of psychology into a full-fledged science. Often pulling on an analogy to the history of physics, chemistry and biology, he argued that 'consciousness' and 'inner causes' were the remnants of superstition, and human psychology and society could be perfected through the principles of operant conditioning.

Skinner adamantly insisted that scientific inquiry could not countenance hypothetical unobservable entities. Following Russell, Skinner argued that explaining a given behavior, such as 'eating,' in terms of a mental state, such as 'being hungry,' was *ad hoc*, equivalent to the pre-scientific explanation of physical events in terms of vitalistic 'forces.' For example, if I explain why a glass breaks by referring to it's fragility, I've really explained nothing at all—I've only explained breaking in terms of being likely to break. A genuine explanation of a glass's breaking is in terms of the environmental conditions and events immediately prior to the breaking of the glass. Likewise, explaining eating in terms of 'hunger' is hollow, repeating only the likelihood of eating behavior.

Throughout his career, Skinner argued that radical behaviorism alone was *the* scientific approach to psychology. Theories—including Hull's—cannot refer to underlying entities. When one objects that paradigmatic sciences like physics postulate unobservable underlying entities such as electrons, Skinner retorts that these are not believed by physics to really exist, but are merely convenient placeholders for the mathematical relationships that hold between observable entities.[40] A scientist must restrict his or her work to observation, not theorizing. In retrospective appraisal of his own work,

39 "Gradually it was found that all the equations could be written down without bringing in forces. What was observable was a certain relation between acceleration and configuration; to say that this relation was drought about by the intermediacy of 'force' was to add nothing to our knowledge. Observation shows that planets have at all times an acceleration towards the sun, which varies inversely as the square of their distance from it. To say that this is due to the 'force' of gravitation is merely verbal, like saying that opium makes people sleep because it has a dormitive virtue. The modern physicist, therefore, merely states formulae which determine accelerations, and avoids the word 'force' altogether. 'Force' was the faint ghost of the vitalist view as to the causes of motions, and gradually the ghost has been exorcized." (Russell, 1946, p 495)

40 See, e.g. interview with Skinner, p. 39 pf Baars.

Skinner would claim of his work in *Behavior of Organisms*:

> The notes, data, and publications which I have examined do not show that I ever behaved in the manner of Man Thinking as described by John Stuart Mill or John Dewey or in reconstructions of scientific behavior by other philosophers of science. I never faced a Problem which was more than the eternal problem of finding order. I never attacked a problem by constructing a Hypothesis. I never deduced Theorems or submitted them to Experimental Check. So far as I can see, I had no preconceived Mode of behavior—certainly not a physiological or mentalistic one and, I believe, not a conceptual one." (1972, p. 112)

In the years following, Behaviorism came to utterly dominate American Psychology. By 1960, for example, the standard textbook for experimental psychology, Burton G. Andreas' *Experimental Psychology* could confidently assert:

> **Psychology seeks to express the laws of behavior.** It makes the assumption that all aspects of behavior, like other natural phenomena, are dependent on the conditions under which the behavior occurs... Psychology seeks to describe the dependence of the activities of people or animals on their environments and states of being. Psychology's place is delineated by this particular goal and the specific techniques devised for striving toward it. (1960, p. 4)

Concurrent developments: Logic and Computing

In 1812, George Boole (1815-1864) published *The Laws of Thought*, which is now regularly classified as a classic work in Logic. The opening paragraph, however, suggests a different discipline:

> The design of the following treatise is to investigate the fundamental laws of those operations of the mind by which reasoning is performed; to give expression to them in the symbolic language of a Calculus, and upon this foundation to establish the science of Logic and construct its method; to make that method itself the basis of a general method for the application of the mathematical doctrine of Probabilities; and, finally, to collect from the various elements of truth brought to view in the course of these inquiries some probable intimations concerning the nature and constitution of the human mind. -- Laws of Thought (1854) Ch1 Para1

Boole, like his predecessor David Hume, believed that the rules that regulate the human mind were simple, and complex ideas were structured out of simple ones in the same way complex theorems are constructed out of simple axioms via logical transformations.

The history of Logic is of great importance here because in 1950, a brilliant young logician named Alan Turing[41] proposed a theoretical physical machine that would be capable of carrying out logical functions. That theoretical machine ultimately became the digital computer we know today.

He further proposed that such a machine could be taught to understand human language, and one could test the sophistication of that teaching by a simple empirical test, now known as the 'Turing test.' An interviewer would have a conversation with two individuals, one human and one computer, for a period of time. If, after five minutes or so, the interviewer could not tell the difference between the two, we would be in a position of calling the machine a 'thinking' machine. According to Turing:

41 You can read more about the life of Alan Turing, who is one of the greatest, yet least well known, scientists of the 20th century, in the section Brief History of Homosexuality.

> "I believe that in about fifty years' time it will be possible, to programme computers, with a storage capacity of about 109, to make them play the imitation game so well that an average interrogator will not have more than 70 per cent chance of making the right identification after five minutes of questioning."

In short, Turing's ideal machine would 'respond to the sense of all that will be said in its presence, as even the dullest men can do.' The challenge set by Descartes and dreamt about by Hobbes, Locke and Hume to create a physical device capable of using language in a productive and systematic way was met, at least, theoretically, by the digital computer.

The question that remains for you, in the course of this game, is whether or not Turing's discovery of the logical functions that meet Descartes' challenge *in fact* lead to, in Boole's words "probable intimations concerning the nature and constitution of the human mind," and whether or not those 'probable intimations' are scientific in nature.

Second Revolution: Cognitive Science

In 1957, two books were published on the topic of language use by humans. As we've discussed, philosophers of mind have long considered language-use the defining characteristic of humanity. The empirical study of language-use therefore, has the potential to quantify, analyze and observe, with scientific reliability, what we are as human beings.

In the first, *Verbal Behavior*, B.F. Skinner explained humans' language use in terms of operant conditioning. Verbal behavior is particularly interesting for the behaviorist because it isn't directly reinforced by the world, but rather mediated by another person via his or her own verbal behavior. In fact, this unique feature comes to form Skinner's definition of verbal behaviors: those behaviors that are 'reinforced through the mediation of other persons' (1957, p. 2). He later refines and restricts that definition thus: "If we make the further provision that the 'listener' must be responding in ways which have been conditioned *precisely in order to reinforce the behavior of the speaker,* we narrow our subject to what is traditionally recognized as the verbal field." (p. 225) This definition, you'll no doubt notice, makes no reference to vocalization, words, sentences, thoughts, phonems, meanings, semantics, grammar, or anything else typically associated with language-behavior.

The second was Noam Chomsky's *Syntactic Structures.* Chomsky opens his first masterwork by noting that the set of all grammatical sentences in any given language, while infinite, is not random. There are sentences like 'Colorless green ideas sleep furiously' which may have never occurred in English before 1957, but nonetheless are grammatical sentences; while at the same time, there are sentences like 'Furiously sleep ideas green colorless' that are not grammatical. He then proposes that an adequate theory of language ought to describe a device that generates all and only the sentences that are grammatical in that language. Any theory that can't generate the set of grammatical sentences simply is not an adequate explanation of human language-behavior.

Central to Chomsky's theory is the thesis that humans differ from animals in their ability to use language. You'll remember from the beginning of this history that that view was shared by Rene Descartes and the Port-Royalists, who used it to argue for the distinction between the soul (mind) and the body. It is not a view held by the Behaviorists. For Chomsky, however, the ability to use language does not entail a non-physical being. Turing's machines showed that a physical entitled generate new and novel sentences that follow the grammatical structures. Verbal behavior, the defining feature of

human psychology, is the ability to structure sentences in new and novel ways via the process of recursion, but that does not mean that human minds are non-physical entities.

Not only do the cognitivists reject the behaviorists conjecture that one can explain human behavior without reference to internal states, they reject the behaviorists rejection of the thesis that there is a dividing like between "man and brutes."

In 1959, Chomsky published a vitriolic review of Skinner's *Verbal Behavior*, in which he claimed that not only were Skinner's definitions of reinforcement and conditioning either confused or circular, he argues that empirically, children learn grammar at a higher rate than can be explained by operant conditioning. It is included in the appendix.

In the decade before these tumultuous years, The Macy foundation had sponsored series of conferences that introduced some of great early mathematicians and computer scientists including John von Neumann (father of most computer languages), Norbert Wiener (founder of cybernetics), Warren McCulloch and Walter Pitts (who together created a mathematical model of a neuron, which is the basis for all neural network architecture), Julian Bigelow and Arutuo Rosenblueth (also pioneering cyberneticists) to the great social scientists and psychologists of the day, including the anthropologist Margaret Mead, the Gestalt psychologist Wolfgang Köhler among others. The goal of these workshops was to investigate the similarities between computational machines and human minds and social structures. Behaviorists almost never attended. While the results from these conferences were minimal, they set the stage for MIT's second Symposium on Information theory, September 10-12 1956, that forever changed forever the face of psychology.

At that conference, Alan Newell and Herbert Simon, the great computer scientists from Carnegie-Melon, presented a simple machine that could do logic proofs and Noam Chomsky presented his idea of a transformative-generative grammar as the basis of language. George Miller writes, in an unpublished paper presented at MIT and repeatedly cited by historians of cognitive science, that he came away from the conference with a sense "more intuitive than rational, that human experimental psychology, theoretical linguistics, and the computer simulation of the cognitive process were all the pieces from a larger whole, and that the future would see a progressive elaboration and coordination of their shared concerns." Miller recalls Newell telling him "Chomsky was developing exactly the same kind of ideas for language that he and Herb Simon were developing for theorem-proving."

And so began 'the Cognitive Revolution".

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Playing a Psychologist or Psychiatrist in the 1970s.

Unlike many other professional organizations of the late 19th century, the APA immediately granted membership to women: specifically the eminent experimental psychophysicist Christine Ladd-Franklin and Margaret Washburn in 1894, two years after its founding. Mary Whiton Calkins was the first woman elected the first president in 1905. [42]

In 1964, a magazine called *Fact* asked 12,000 psychiatrists if they would be willing to diagnose conservative presidential candidate Barry Goldwater. Of the more than 2000 that responded 1,189 responded that he appeared to have a 'personality disorder'--that slippery category between psychosis and neurosis. The headline proclaimed (under the magazine's title 'fact:') that "1,198 Psychiatrists Say Goldwater Is Psychologically Unfit To Be President! You'll recall that the 1964 election witnessed Johnson's famous 'Daisy' ad, which suggested that the election of Barry Goldwater would lead to nuclear annihilation.[43]

In 1969, the American Psychological Association issued a public proclamation, citing lack of evidence to the contrary that:

> **WHEREAS** in many state legislature, bills have recently been introduced for the purpose of repealing or drastically modifying the existing criminal codes with respect to the termination of unwanted pregnancies; and whereas, termination of unwanted pregnancies is clearly a mental health and child welfare issue, and a legitimate concern of APA; be it resolved, that termination of pregnancy be considered a civil right of the pregnant woman, to be handled as other medical and surgical procedures in consultation with her physician, and to be considered legal if performed by a licensed physician in a licensed medical facility.[44]

The American Psychiatric Association followed in 1977 with:

> The emotional consequences of unwanted pregnancy on parents and their offspring may lead to long-standing life distress and disability, and the children of unwanted pregnancies are at high risk for abuse, neglect, mental illness, and deprivation of the quality of life. Pregnancy that results from undue coercion, rape, or incest creates even greater potential distress or disability in the child and the parents. The adolescent most vulnerable to early pregnancy is the product of adverse sociocultural conditions involving poverty, discrimination, and family disorganization, and statistics indicate that the resulting pregnancy is laden with medical complications which threaten the well-being of mother and fetus. The delivery that ensues from teenage pregnancy is prone to prematurity and major threats to the health of mother and child, and the resulting newborns have a higher percentage of birth defects, developmental difficulties, and a poorer life and health expectancy than

42 Titchener, who was a founding member of the APA but probably never attended a meeting, created a separate organization called the "Experimentalists" in 1904, from which he explicitly barred women. Christine Ladd-Franking engaged in high profile war of words with Titchener until his death in 1925. Unfortunately, many people misremember this conflict as happening in the APA, which is incorrect. Also unfortunately, Titchener's student E.G. Boring wrote the most famous history of experimental psychology, in which he attacks Christine Ladd-Franklin as 'invading' laboratories and 'the women graduate students manicure her fingers' in the laboratory. (see 'Women scientists in American: struggles and strategies to 1940', p. 390)

43 For a brief history see Pinsker, H. (2007). "Goldwater Rule' History", Psychiatric News, 42 (15), p. 33 (http://pn.psychiatryonline.org/content/42/15/33.1.full)

44 Available at http://www.apa.org/about/governance/council/policy/abortion.aspx

the average for our society. Such children are often not released for adoption and thus get caught in the web of foster care and welfare systems, possibly entering lifetimes of dependency and costly social interventions. The tendency of this pattern to pass from generation to generation is very marked and thus serves to perpetuate a cycle of social and educational failure, mental and physical illness, and serious delinquency.

Because of these considerations, and in the interest of public welfare, the American Psychiatric Association

1) opposes all constitutional amendments, legislation, and regulations curtailing family planning and abortion services to any segment of the population; 2) reaffirms its position that abortion is a medical procedure in which physicians should respect the patient's right to freedom of choice - psychiatrists may be called on as consultants to the patient or physician in those cases in which the patient or physician requests such consultation to expand mutual appreciation of motivation and consequences; and 3) affirms that the freedom to act to interrupt pregnancy must be considered a mental health imperative with major social and mental health implications.[45]

You'll recall that the US Supreme court decided that abortion was covered by the constitutional dictate to a 'right to privacy,' thereby blocking all laws that had kept abortion illegal.

Needless to say, not only were these political events were hugely controversial in the United States, the professional involvement of psychiatrists and psychologists was itself hugely controversial. The 'Goldwater affair', as it became to be known, embarrassed Psychiatry as a whole, painting the entire discipline as either politically motivated and unreliable (in the technical sense, that the same individual would not be classified the same way by a different analysts). And the abortion declarations were widely seen as unmotivated by scientific evidence.

45 Available at http://www.psych.org/Departments/EDU/Library/APAOfficialDocumentsandRelated/PositionStatements/197703.aspx

History of classifications of mental illness

While behaviors associated with mental illness—hallucinations, catatonic states, mania, etc.—have been known since ancient times, psychiatry dates its regularization as a scientific discipline to the work of the French physician Phillipe Pinel. His *Traité médico-philosophique sur l'aliénation mentale; ou la manie* stands as the first attempt at a scientific classification of mental illness. The book, translated as *Treatise on Insanity* in 1806 by D.D. Davis, is excerpted in Appendix Pinel on page 124.

Pinel was an intellectual disciple of Étienne Bonnot de Condillac, who in turn, was a disciple of John Locke.[46] Locke is most well known as the intellectual progenitor of the American Constitution. But his views on the nature of mind and the empirical basis of knowledge held sway over much of the Western intellectual world in the first half of the 19th century. Locke's influence on Condillac and hence Pinel was two-fold: first, he held that all our ideas originate in sensation and reflection. Second, and as importantly, Locke followed Francis Bacon in teaching that all knowledge must be based on careful, systematic observation.

For the empiricists, it follows that insanity, which is a severe form of our ideas 'leading us astray', is explained by a incorrect connection and association of ideas. The mechanism is simple: some of our ideas have a natural affinity or connection with one another. Others are held together by mere custom or habit. Cases of insanity are cases where habitual associations become so disorganized they begin to effect the 'natural' associations. This misassociation can become so extreme that it can "set us awry in our actions, as well moral as natural, passions, reasonings, and notions themselves" (Bk 2, Ch 33, p9. p 317). It is worth noting that to this day, we use metaphors like 'lost his senses' to describe someone with mental illness; and we describe poorly chosen actions as 'not very sensible.'

This is simply the theoretical basis for understanding insanity in the broadest possible terms. To truly understand how mental disorder is defined and classified, we must consider how the mentally ill have been treated.

Pinel – Foundation in Empiricism

Phillipe Pinel (1745-1826) revolutionized the treatment of the insane. When, in 1792, he was appointed a physician at the main asylum in Paris—the Bicêtre hospital—the situation was dire. According to a biographer in 1846:

> "The buildings were unfit for habitation. In them were congregated men crouching together in the mud, in stone cells, narrow, cold, damp, destitute of air and light, and merely furnished with a straw bed, seldom renewed, and soon becoming foul and offensive; wretched dens, in which one would hesitate to place the meanest animal. The insane, who were immured in these filthy holes, were at the mercy of their attendants, and these persons were malefactors released from prison. The wretched patients were loaded with chains and manacled like convicts. Thus given up defenseless to the wickedness of their guardians, they were the sports of an insulting mockery, or of a brutality all the more blind that it was gratuitous." (Marx, 1846, p. 194-195)

46 See, e.g. *Treatise on Insanity*, p. 46

Upon his arrival, Pinel immediately began advocating pity, respect, and compassion for the patients,[47] not only for humanitarian reasons, but also in order to allow the Baconian method of careful observation. Bicêtre's chief physician, Pussin, was sympathetic to Pinel's techniques, and began a pilot study of unchaining the patients.

Two years later, Pinel was appointed chief physician of the Hospice de la Salpêtrière—Paris' parallel institution for women. There, women were kept chained, often naked, in subterranean cells; subjected to the terrors of abusive guards and hungry rats. Pinel immediate banned the use of metal chains as restraints, allowed the women clothing, and established something resembling human civility.[48] This act was mythologized during French Revolution as part of the overthrow the aristocratic order, and has been duly commemorated in Art.[49]

Dr. Philippe Pinel at the Salpêtrière, 1795 by Robert Fleury.
Pinel removing the chains from patients at the Paris Asylum for insane women.

Pinel's revolutionary kindness is not just a story of a sympathetic humanitarian. Pinel's goal was to systematical classify mental illness in the Baconian manner. The conditions of confinement found in the Bicêtre and the Salpêtrière compounded the patients' mental illness, and confounded his attempts at observation. In these conditions, one could not determine if the regularity of symptoms found in the population resulted from the illness or the treatment. By providing the patients respect and dignity, he believed he could observe their mental illness in a more untainted form.

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47 The story of how Pinel became interested in insanity is frequently retold. Like Newton's apple, it is probably something of a myth, although there may be some core of truth. Here it is, as told by himself in *A Treatise on Insanity*:

> The loss of a friend, who became insane through excessive love of glory, in 1783, and the ineptitude of pharmaceutic preparations to the mind elated, as his was, with a high sense of its independence, enhanced my admiration of the judicous precepts of the ancients, and made me regret that I had it not then in my power to put them in practice. (p 52)

From a letter by Marx 1846:

> ...in 1785, he had the misfortune to lose a young man to whom he was much attached, and whose reason became affected through excessive study and abstinence. This unfortunate person, after his return to his family, became maniacal, one evening he escaped from his father's house into the neighboring forest and was devoured by wolves; a few torn rags were found the following day, and near them a copy of the Phaedra covered with blood.

And by Lisa Appignanesi in 2009:

> A shy provincial like himself, the friend had fallen into despair and then 'mania' when his legal aspirations failed to materialize. Unable to help the younger man once he had all but ceased to eat, Pinel had brought him to the Hôtel-Dieu where a treatment of baths and food seemed to restore him. But his worried family intervened and took him home before he was quite well. The youth escaped their hold, fled to the woods and was found dead only after the wolves had got him. (p58)

48 From a letter of honor, included in Marx 1846: “He who walks in an odoriferous flower-garden, which had formerly been a pestilential swamp, will best be able to appreciate what you effected in madhouses. Formerly an atmosphere almost stifling, damp rooms, the clank of chains, the cries of those under the lash, the hoarse growl of the rough attendants, the desperate frenzy of the ill-used patients; these succeeded by clean apartments, the greatest humanity in personal attentions, and an atmosphere of peace and confidence throughout the whole establishment. (p.210)

49 See Roberty Fleury's 'Dr. Phillippe Pinel at the Salpêtrière' (1795)

In general, Pinel followed Locke and Condillac in holding that insanity was 'derangement of the understanding,'[50] yet extended the view to cover cases where the memory, understanding and judgment were perfectly sound, and still the patient was maniacal. Pinel thus abandoned any formal all-encompassing theoretical explanation of insanity *per se*, and preferred to work with its variants, which he classified as mania, melancholy, dementia and idiocy.

Pinel spent a great amount of time showing that the conditions he was treating did not have a physiological basis. Much of his argumentation in *Treatise on Insanity* turns on the dissections performed on patients who had died while at the Bicêtre. The reason for this was two-fold: first, the ancient Aristotlean understanding of the mind held that mental illness resulted from too much or too little of one of the four main 'humours': black bile, yellow bile, blood and phlegm.[51] By showing that the mentally ill had no significant lesions in the brain, or imbalances in their 'fluids', Pinel was able to establish the independence of psychiatry from other forms of medicine.

Secondly, there is a long tradition of defining the 'mental' as that which is opposed to the 'physical'. For example, Rene Descartes famously argues that the actions of our bodies can be explained entirely in physical, mechanistic terms, except that which can be attributed to, in his terms, our 'souls.' It follows then, that if an illness is to be truly *mental*, it must not have a physical explanation. And most importantly, physical causes are treated with physical interventions. As insanity was now deemed non-physical, the treatment cannot be physical. Hence, psychiatry is a discipline independent from physical medicine.

While Pinel had no strong theoretical commitment or agenda, by following Locke's notion of mental illness as a confusion of ideas, he made two significant contributions to both psychiatry as a medical discipline and our understanding of the mind more broadly: First, if insanity was just a misassociation of ideas, it was not a permanent, inherited incurable disease. Second, if insanity is a misassociation of ideas, it does not depend on or result from physiological changes. Explanations for mental illness thus did not require autopsy; and treatment did not require surgery.[52]

It is likewise important to recognize that Pinel was, in many ways, precisely following Bacon's system of investigation. He was not attempting to form an overarching explanation. He was setting down tables upon tables of observed facts, classifying and arranging phenomena, highlighting privileged instances, and was open to any and all techniques that might shed light on these cases. After initial observation, he split “insanity” into four varieties, distinguishing between the incurable dementia and idiocy from the often transient and curable mania and melancholy.

Therapeutically, Pinel called his humane treatment of the insane the 'moral treatment.' In his words,

> I then discovered, that insanity was curable in many instances, by mildness of treatment and

50 See, e.g p. 3, Section 4, p 134. Also, from the Marx (1846): Every delusion is the result of confused modes of thinking; wrong and crime originate in ignorance.” (p. 212)

51 Each humour had an associated personality type. Imbalance in a given humour was thought to be the cause of imbalances in mood or personality: people with too much black bile were melancholic, yellow bile choleric (full of energy), blood sanguine (impulsive), and phlegm phlegmatic (emotional). See Aristotle's *Problems* Bk 3, Section1 Galen's *De temperamentis*, and Avicenna's *The Canon of Medicine* for more detail.

52 The modern reader of *A Treatise on Insanity* is impressed by the number of times that Pinel stresses these two features of mental illness. We take both of these for granted to such an extent that the work can seem highly repetitive and redundant. But they were radical theses in the late 18th century, and Pinel's thoroughness in covering the topics no doubt reflects the importance of these thesis in his own mind. (Cite Data – number of pages, examples, etc.).

> attention to the state of the mind exclusively, and when coercion was indispensable, that it might be very effectually applied without corporal indignity. (p. 108).

His therapeutic program meant paying attention to the environment in which the insane were confined. He changed the architecture, the diet, the way the nurses and orderlies treated the patients, everything. He even went so far as to allow the higher-functioning patients to work as nurses for the lower-functioning. Patients were listened to. Careful, detailed personal histories were taken. Baths, walking and gardening were encouraged.

Pinel frequently borrowed from the snake-oil salesmen and charlatans that populated Western Europe at the time. He used of the techniques of mesmerism (hypnosis), hellebore as an evacuative, bleeding, etc. , but as a follower of Bacon, insisted on the maxim "We cannot cure diseases by the resources of art, if not previously acquainted with their terminations, when left to the unassisted efforts of nature." (p. 109). For him, extreme treatments could only be used in extreme cases. The curable would be cured by simple humane treatment.

It is worth pointing out that the word 'asylum' means, of course, a sanctuary or refuge. It was used in the late 18th century to describe leper colonies, but it first appears in English in the 1808 translation of Pinel's *Treatise on Insanity,* to reference the Bicêtre. It appears in English newspapers only in the 1860's, long after Pinel's 'moral treatment' had come to dominate the English treatment of the mentally ill.

Esquirol – Mental Alienation

While Pinel tended to think of transient mental illness as a confusion of ideas, he occassionally spoke of the role of passions in mental illness. In the early pages of the *Treatise*, he hypotheses three different causes of insanity:

> I now proceed to describe the general progress of periodical insanity. Amoung its various causes; exclusive of changes in the state of the atmosphere, my experience leads me to enumerate as the most frequent; undue indulgence of the angry passions; any circumstances calculated to suggest the recollection of the original exciting cause of the disease, intemperance in drinking, inanition, &c. (p. 12)

Pinel's greatest student, Esquirol built on this hypothesis of 'undue indulgence of the angry passions' and redefined the notion of transient insanity as 'mental alienation.' It was Esquirol who grew the empirical understanding of the mind into a full-fledged psychiatric system. But like Pinel, the set of conditions he sought to explain were those with symptoms that were not obviously explained by physical, bodily conditions.

To Pinel's four-fold classification, Esquirol added monomania, or obsession with a single idea, as distinct kind of mental illness. 'Melancholy,' he renamed 'lypemania.' because the former implied the medieval theory of 'humors' and 'black bile.' These were distinguished by the types of passions that were out of order: "The passions of the insane are impetuous, especially in mania and monomania. They are of a depressing character in lypemania. In dementia and imbecility, those only exist, which spring from the first wants of man,--love, anger, jealousy." (p 26).

As the curable, transient forms of insanity were diseases of malformed passions, their treatment required reforming or redirecting the passions. His five varieties of insanity are defined thus:

1. Lypemania (melancholy of the ancients) delirium with respect to one, or a small number of objects, with predominance of a sorrowful and depressing passion.
2. Monomania, in which the delirium is limited to one or a small number of objects, with excitement, and predominance of a gay, and expansive passion.
3. Mania, in which the delirium extends to all kids of objects, and is accompanied by excitement.
4. Dementia, win which the insensate utter folly, because the organs of thought have lost their energy, and the strength requisite to fulfill their functions.
5. Imbecility, or idiocy, in which the conformation of the organs has never been such, that hose who are thus afflicted, could reason justly. (29)

It is important to note here that the passions *accompany* delirium with respect to collections of objects. One cannot be passionate without being passionate about something. The 'something' that is the object of passion is supplied by the senses – and hence, we're still within a Lockean framework of understanding the mind. Ideas originate in sense experience and internal reflection. When the passions directed at one of these ideas becomes excessive of out of control, lypemania or monomania results, depending on the nature of the particular passion that becomes excessive. When the passions are exaggerated *without* a specific object, and hence apply themselves to *every* object, or what ever object is before the senses at a particular moment, mania results.

Mental illness's causes "are as numerous as its forms are varied." Case studies presented in his *Mental Maladies* include climate, seasons, age, sex, temperament, trauma (especially during the first menstrual cycle for young women), excessive study, ambition, etc. Again, as in Pinel, the difference between the mentally ill and the mentally stable is one of scale, not of kind. Everyone has passions – they are why we grieve, fall in love, work for that 'A', make personal sacrifices for our friends and families, etc. – the question of insanity is whether these passions are appropriate or excessive and whether they are directed at an appropriate or inappropriate object.

According to Esquirol:

> "The first wants of man, limiting themselves to those connected with his preservation and reproduction, provoke the determinations of instinct; an internal impulse leads us to gratify them. The secondary wants, attach themselves to the first, and the desires which they excite, acquire as much more energy, as we have means of satisfying them, They produce the primitive passions; in fine, they are the wants which are connected with our preservation; and are the fruit of our increasing intelligence and civilization. They engender the factitious passions,—those passions which cause the greatest injury to man, especially in the higher walks of life.
> Infancy, except from the influence of the passions, is almost a stranger to insanity; but at the epoch of puberty, the sentiments, unknown until this period, cause new wants to arise. Insanity then appears, to trouble the first moments of the moral existence of man.
> At mature age, the relations become extended, social wants multiple and the passions take a new character. In proportion as the amorous passions become enfeebled, those of a factitious nature grow strong. Personal interest, ambition, love of distinction and avarice, replace the charms of love and delights of paternity.
> At this period of life also, mental alienation appears; insanity is more obstinate, and more concentrated. It passes more readily into a chronic state; and is more dependent upon abdominal lesions.
> A sense of his weakness, renders the old man more clam; and while meditating upon the errors to

> which the passions lead, he isolates himself, and becomes an egotist.
> Insanity from a moral cause, rarely exists with him, and when he loses his reason, it is because his organs are fatigued and exhausted. Hence, it is neither mania nor monomania which is developed, at this period, but senile dementia.
> Of all moral causes, those which most frequently produce insanity, are pride, fear, fright, ambition, reverses of fortune, and domestic trouble. This last should have been placed, relative to its great influence, at the head of the moral causes, if it be limited to a simple ideas; but by domesticate troubles, I express all the pains, all the griefs, all oppositions, misfortunes and dissensions that grow out of the family state.
> (*Mental Maladies: A Treatise on Insanity*, p 45-46)

Esquirol began to gather around himself a 'circle' of students who are sometimes referred to as the 'mental alienists'. Two of the most famous of his students were Charles Lasègue, who is now credited with working out the first definition of hysteria and documenting *anorexia nervosa*; and Étienne-Jean Georget who delineated four sub-types of 'monomania': theomania (religious obsession), ertomania (sexual obsession), demonomania (obsession with evil) and homocidal monomania.

squirol's concept of monomania sparked what is probably the first recorded wave of copy-cat psychosis. In November 1825, a young single mother of two named Henriette Cornier, decapitated the 19 month-old child of her neighbors. She had prepared her room for the act, even placing a bucket to catch the blood. She had known the family of the infant for only ten days, and had, up until this event, been nothing but loving and gentle towards the little girl who would be her victim. When the police arrived, she offered no resistance to the police, and did not flee. She confessed, saying that the idea had taken hold of her, and she simply had to act upon it.

The case became a sensation across Europe. Georget diagnosed her as a 'homicidal monomaniac.' At her trial, the jury decided that the act had *not* been premediated and as a result, she was sentenced to life in prison with hard labor instead of death. This ruling makes little sense: Cornier admitted that the idea had occurred to her before the event, and she had carefully prepared her room for the murder. Thus, many commentators—include Lisa Appengasi (p 75)—have attributed the decision to Georget's diagnosis of mental alienation. After all, if Cornier was mentally ill, does pre-planning count as 'premediation'?

The idea of the murderous monomaniac took off across Europe, informing or appearing in some of the greatest literature of era, including (according to various literary critics) Poe's “The Tell-Tale Heart,” the character of Roskolvikov in Dostovesky's *Crime and Punishment*, and even Heathcliff in Bonte's *Wutherheights.* The Marquis de Sade is also said to have been a monomaniac.

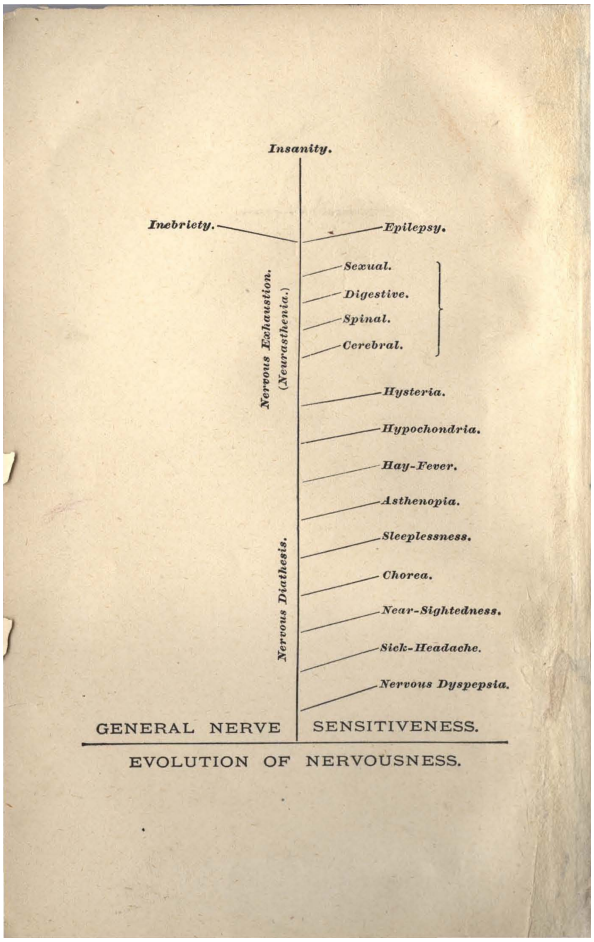
Beard – American Nervousness

George Beard (1839-1883) was an American physician who started out advocating for the use of electricity as a medical intervention. His first book *Electricity as a Tonic* (1866) suggested that electricity could be used to cure 'general nervous debility,' including dyspepsia, chorea, neuralgia, anaemia, or amenorrhoea. (1867, p. 73) Beard was a charismatic popular author, who went on to write a series of popular home-healthcare books starting with *Our Home Physician: Handy Book of Family Medicine* in 1869.[53]

53 For more, see Edward M. Brown, “An American Treatment for the 'American Nervousness': George Miller Beard and

Starting in the 1870s, Beard became increasingly interested in psychological disorders. In 1881, he published *American Nervousness*, a book that came to define psychological treatment for a generation. 'Nervousness' did not mean then what it means today: jitteriness or tension. Then, it denoted a kind of fundamental exhaustion—what we still call a 'nervous breakdown'. Technically, Beard defined it as:

> "deficiency of lack of nerve-force. This condition, together with all the symptoms of diseases that are evolved from it, has developed mainly within the nineteenth century, and is especially frequent and severe in the Northern and Eastern portions of the United States. Nervousness, in the sense here used, is to be distinguished rigidly and systematically from simple excess of emotion and from organic disease." (1881, p. vi)



It was caused by "modern civilization, which is distinguished from the ancient by these five characteristics: steam-power, the periodical press, the telegraph, the sciences, and the mental activity of women." (p. vi)

Beard was building on both folk theory of innate energy as well as recent discoveries in neurology (compare, for example, the concurrent theory of 'specific sense energies' proposed by Müller – see the Birth – German Physiological Psychology in the 1880s-1890s). But he extended his view to cover diseases such as "neurasthenia (nervous exhaustion... hysteria, hay-fever, sick-headache, inebriety... some and phases of insanity." (p. vii) whose 'signs' could include:

> The nervous diathesis; susceptibility to stimulants and narcotics and various drugs, and consequent necessity of temperance; increase of the nervous diseases inebriety and neurasthenia (nervous exhaustion), hay-fever neuralgia, nervous dyspepsia, asthenopia and allied diseases and symptoms; early and rapid decay of teeth; premature baldness; sensitiveness to cold and heat; increase of diseases not exclusively nervous, as diabetes and certain forms of Bright's disease of the kidneys and chronic catarrhs; unprecedented beauty of American women; frequency of trance and muscle-reading; the strain of dentition, puberty and change of life; American oratory, humor speech and language; change in type of disease during the past half century, and the great intensity of animal life on this continent. (p. vii-ix)

Beard died shortly after the publication of *American Nervousness,* but his cause was taken up by Silas Wier Mitchell (1829-1914), who popularized the standard treatment for American Nervousness: the rest cure. As you can probably imagine, if the cause of American Nervousness was modern civilization, including women having a mental life, the cure was removal from modern civilization, including

General Electrization, available at http://bms.brown.edu/HistoryofPsychiatry/Beard.html

banning women from having a mental life.

In 1885, at the age of 25, Charlotte Perkins Gilman, a member of a prominent family of American progressives that included the abolitionist author Harriet Beecher Stowe, the suffragist Isabella Beecher Hooker, and the charismatic clergyman Henry Ward Beecher, gave birth to her only child Katharine Beecher Stetson. After the birth, she experienced what we now recognize as a severe case of post-partum depression.

She was taken to see Silas Wier Mitchell. She described her experience of the treatment she received thus:

> "During about the third year of this trouble I went, in devout faith and some faint stir of hope, to a noted specialist in nervous diseases, the best known in the country. This wise man put me to bed and applied the rest-cure, to which all still-good physique responded so promptly that he concluded there was nothing much the matter with me, and sent me home with solemn advice to 'live as domestic a life as far as possible,' to 'have but two hours' intellectual life a day' and 'never touch a pen, brush or pencil again' as long as I lived. This was in 1887." ("Why I wrote *The Yellow Wallpaper*, 1913)

Her experiences you may know from the American Standard *The Yellow Wallpaper* (1892). Gilman acknowledged that she never suffered from the hallucinations the character did, but that she "came so near the borderline of mental ruin that I could see over." (1913)

While Beard and Wier Mitchell are today often ridiculed as snake-oil salesmen playing on the political concerns over rapid modernization and the suffragist movement, they made a number of notable contributions to our commonsense understanding of psychological disorder. First, they indelibly linked mental disorders to neurology. As mentioned above, we still use phrases like 'nervous breakdown' in common parlance to explain psychological disorder. Second, by proscribing puberty, birth, menopause and the 'unprecedented beauty of American women' as prime causes of mental illness, they further established a link between the onset and frustration of sexuality with mental illness, a point Freud would build his entire theory around.

It would be a mistake, however, to accept the simplistic narrative that the doctors of this era were manipulating and abusing their female patients without consent. Historians of Psychology Laura C. Ball and Jennifer L. Bazar have recently demonstrated that in some cases, some women aggressive sought out procedures, such as clitorectomies, in this period. In one remarkable case, a patient even 'tormented the doctors to operate again.'[54]

On way to chart the rise of psychiatric diagnosis is to consider how people with mental illness are counted. Starting in 1830, the US census included categories for the disabled, including 'blind' and 'deaf.' From 1840-1870, the census included the category 'idiocy/insanity.' Starting in 1880, however, the federal government began using categories of mental illness. In 1880, those categories were:

54 Ball and Bazar (2010)

21 Mental Disease, Insanity
00 Melancholy
01 Mania
02 Hysteria
03 Nerves
04 Dementia
05 Insane (not elsewhere classified)
22 Mental Retardation, Idiocy
00 Idiotic

Table 11: Classifications of 1880

Readers of these sections will no doubt recognize this taxonomy as owing an intellectual debt to Esquirol and Beard.

Charcot

Charcot began his career at the Salpêtrière tending to the 'incurables'—the patients whose conditions had been classified as 'idiocy' or 'dementia.' Charcot saw himself primarily as a nosologist: a classifier or taxonomizer of disease, rather than a healer. His appointment was, in many ways, ideal. This was a patient population for which there was no hope of cure, and morever, had not been studied in a careful way.

Charcot is, today, often classified as a neurologist. That is a bit of historicism, as there was no such field when he began work. In fact, the 'neuron doctrine', or the idea that the nervous system is composed of individual cells called 'neurons,' is not formally advanced until 1891. And it isn't until 1911 that Ramon y Cajal uses the Golgi stain to highlight neurons in the hippocampus, confirming the neuron doctrine.

None of that stopped Charcot from classifying a huge number conditions and diseases we still recognize today: multiple sclerosis, amyotrophic lateral sclerosis (ALS or “Lou Gerig's disease,” it was once called “Charcot's disease”), lenticulostriate artery (“Charcot's artery”), joint arthopathy (“Charcot's joint”), peroneal muscular atrophy (“Charcot-Marie-Tooth disease”), Charcot Wilbrand syndrome, Charcot's intermittent hepatic fever and even Parkinson's disease were first named or described by Charcot.

Methodologically, Charcot advocated what he called the 'anatomo-clinical' method, which meant careful anatomical analysis performed largely post-mortum combined with case studies of vivisection in both animals and human subjects. Once a behavioral deficiency has been identified, careful anatomical studies are carried out to determine any corresponding anatomical 'deficiency,' or lesion. In his own words:

> Allow me to recall to your minds the opinion which that most illustrious physiologist, Claude

> Bernard, thus expressed:—"Pathology," said he, "should not he subordinated to physiology. Quite the reverse. Set up first the medical problem which arises from the observation of a malady, and afterwards seek for a physiological explanation. To act otherwise would be to risk overlooking the patient, and distorting the malady." These are excellent words, which I have ventured to quote verbatim, because they are absolutely significant. They enable us to clearly understand that the whole domain of pathology appertains strictly to the physician, who alone can cultivate it and make it fruitful, and that it necessarily remains closed to the physiologist who, systematically confined within the precincts of his laboratory, disdains the teaching of the hospital ward. (p. 8)

In 1878, he began extensive work on hypnosis. Charcot became increasingly interested in the therapeutic use of hypnosis to cure what he called 'hysteria', a vaguely-defined collection of usually transient symptoms that included paralysis, anesthesias, visual or auditory agnosias, temporary blindness or deafness, amnesia and seizures. While 'hysteria' came to be identified closely with women, Charcot himself believed that it could effect men, and treated many men that he diagnosed with hysteria.

This does not mean, however, that Charcot gave up his commitment to neurological explanations of behavior. He simply allowed functional and/or physiological explanations in addition to the anatomical. In his words:

> There is another important fact in the history of neuroses in general, and of hysteria in particular, which clearly shows that these diseases do not form, in pathology, a class apart, governed by other physiological laws than the common ones. (13)

I've quoted this passage because it is the first use of the word 'neuroses.' It's root in neurological terminology is obvious, but here Charcot uses itto demarcate transient, psychological, functional or dynamic neurological conditions from the incurable, intransient, anatomical neurological conditions we still classify as medical. 'Neurosis' thus supplants 'mental alienation' and 'nervousness' as the descriptor of the set of psychological conditions that cannot be explained physically.

In 1890, blocked by antisemitism in Germany from further education, a young Sigmund Freud, came to study with M. Charcot. There, he learned the techniques of hypnosis. Later in life, Freud frequently referred to Charcot as his 'mentor,' and even attributed the idea that all neuroses originate 'in the genitals' to Charcot.[55]

In his eulogy for Charcot, Sigmund Freud said:

> He was not a reflective man, not a thinker: He had the nature of an artist—he was, as he himself said, a 'visuel', a man who sees... He used to look again and again at the things he did not understand, to deepen his impression of them day by day, till suddenly an understanding of them dawned on him. In his mind's eye the apparent chaos presented by the continual repetition of the same symptoms then ave way to order: the new nosological picture emerged, characterized by the constant combination of certain groups of symptoms... He might be heard to say that the greatest

55 In his 'History of the Psychiatric Movement', Freud writes: "...It was the case of the young married couple from the far East. The wife was a great sufferer and the husband was impotent, or exceedinly awkward. I head Charcot repeat: "*Tâchez donc, je vous assure vous y arriverez*." Brouardel, who spoke less distinctly, must have expressed his astonishment that such symptoms as those of the young wife should have appeared as a result of such circumstances, for Charcot said suddenly and with great vivacity: "*Mais, dans de cas pareils, c'est toujours la chose génital, toujours—toujours-toujours*." And while saying that, he crossed his hands in his lap an jumped up and down several times, with the vivacity peculiar to him." (Freud, 1938, p. 937-938)

> satisfaction a man could have was to see something new-- that is, to recognize it as new; and he remarked against and again n the difficulty and value of this kind of 'seeing'. (Quoted in Mad, Bad and Sad, p. 128)

It should be fairly obvious that Freud here is describing, essentially, the Baconian approach to scientific classification. Careful, close observation with only careful, conservative theoretical suppositions. Freud, of course, became famous for his theoretical suppositions later in life. Whereas Charcot was content with describing neuroses and localizing them in the nervous system, Freud sought to explain the origins of neuroses in non-physical terms.

Freud & Breuer

By the time the late 19th century arrives, we are beginning to find general agreement that mental illnesses are characterized by symptoms with no bodily, physical (or in Beard's terms 'organic') explanation.[56] That understanding defined the limits of psychiatry. When a condition could be explained in anatomical terms, it was no longer considered psychiatric and reverted to medical. When it could not —when it had to be explained in terms of 'psychic energy—it was given to the psychiatrists.

This thesis was not challenged largely in part because psychiatrists practiced in hospitals that contained psychiatric patients. That sounds circular, but it isn't: Pinel, Esquirol and Charcot were attempting to create a theory of mental illness that could explain the patients they say before them. The patients they saw before them were not brought there because they fit the theory, or because they had chosen to be there. They were brought to the Bicêtre and Salpêtrière when the rest of the medical community had given up attempting to explain their symptoms. The same can be said for Beard and Wier Mitchell: Perkins Gilman was taken to see Wier Mitchell only after all physical interventions had failed.

These founders of psychiatry theorized about a population that had been deemed mentally ill *because the medical community had given up explaining their symptoms*. Not the other way around. The Psychiatric hospital was a kind of catch-all for those individuals whose symptoms could not be alleviated by physical medicine, and hence it is unsurprising that the definitions of insanity we find in this era require the absence of a physical explanation.

In 1880, Josef Breuer, a student of the great psycho-physiologist Ewald Hering was studying the ear as a part of his research at Vienna General Hospital. It was there that he first met 'Anna O.', a young woman with an extremely acute cough. Finding no physical reason for the cough, her family physician diagnosed her with “typical *tussis nurvosa* [nervous cough]” (p 27) Shortly thereafter a number of other symptoms arose. Freud & Breuer describe her case thusly:

> Before this time she too had always enjoyed good health, showing no sign of nervous indisposition during her development. Of considerable intelligence, remarkably acute powers of reasoning, and a clear-sighted intuitive sense, her powerful mind could have digested, needed even, more substantial intellectual nourishment, but failed to receive it once she had left school. Her rich poetic and imaginative gifts were controlled by a very sharp and critical common sense. The latter also made her quite closed to suggestion. Only arguments had any influence on her, assertions were without effect. Her will was energetic, tenacious and persistent, sometimes heightened to such obstinacy that it would give way only out of kindness and consideration for others.

56 See, for example, Drellich, Marvin G. “Classical Psychoanalytic School” in Arieti, S. (1974). *American handbook of psychiatry* (2d ed.). New York,: Basic Books.

> One of her principle traits was a sympathetic kindness. Even during her illness, she benefited greatly from the care and support she gave to some sick and poor people, for it allowed her to satisfy a strong drive. Her spirits always tended slightly to exaggeration, whether of joyfulness or grief, and as a consequence she was also somewhat moody. The element of sexuality was remarkably undeveloped: the patient, whose life became transparent to me in a way that seldom happens between people, had never been in love, and not once in the mass of hallucinations that occurred during her illness did this element of the inner life emerge...
> ...The course of the illness falls into several distinct phases. They are as follows:
> A) Latent incubation. From mid-July 1880 to approximately 10 December. This case was exceptional because it afforded so complete an insight into a phase that in most cases escapes us, and for this reason alone its pathological interest could not be overestimated. I will expound on this part of the history later.
> B) Manifest illness: a peculiar kind of psychosis, paraphasia, *stabismus convergens* [convergent squint], sever visual disturbance, paralyzing contractures, complete paralysis in the upper right and both lower extremities, partial paralysis in the upper left extremity, paresis of the neck muscles. A gradual reduction in the contracture of the right extremities. Some improvement, interrupted by a sever psychical trauma (death of the father) in April, after which
> C) A period of continual somnambulism ensues, which then alternates with more normal states; continuation of a series of chronic symptoms until December 1881.
> D) Gradual winding down of mental states and symptoms until June 1882. (p25-26)

Breuer took over her care during the period of 'manifest illness,' during which, Anna O. slept for great periods of time ('somnambulism'), but when she awoke in the evening, she would complain of 'torment.' Her speech lost all grammatical structure ('paraphasia') and she would piece together words and phrases from the five distinct languages she spoke, producing an incomprehensible jargon. This same jargon appeared in writing, so Breuer knew that it was not a disfunction of the physical mechanism of speech.

In the early spring of 1881, Anna O fell mute for a period of two weeks. At this point, Breuer claims that he "knew she had taken great offense at something and had resolved to say nothing about it. When I guessed as much and forced her to talk about it, the inhibition, which had until then made it impossible for her to speak about anything else either, disappeared." (p 29)

After her father's death, her illness became much more severe. Breuer noticed, however, that her periods of sleep in the later afternoon, during which she was 'tormented' by hallucinations, resembled hypnotic states. He decided to preemptively hypnotize her and prompt her to 'talk through' these tormenting phantasies. The symptoms subsided quickly. The day after a session, she would become 'quite calm' and 'agreeable, obedient, industrious and even in good spirits'. The second day after a session she would be 'increasingly moody, contrary and disagreeable, and this worsened on the third.' Anna O. named these sessions (in English) the '*talking cure*' and '*chimney-sweeping.*' Breuer preferred the more sophisticated 'cathartic procedure.'

Breuer communicated this to his friend Sigmund Freud, who offered to co-author a paper laying out his findings. That paper, titled 'The Psychic Mechanism of Hysterical Phenomena,' first appeared in 1893, but was republished as the first chapter of Freud and Breuer's *Studies on Hysteria* (1895). In it, Freud and Breuer propose a new form of hysteria, called 'traumatic hysteria', which they conjecture is always connected to some traumatic event that evokes the syndrome. They further hypothesize that the

traumatic event can be unavailable to the conscious, reflective mind of patient—i.e. be unconscious—yet still be causally responsible for the hysterical symptoms. Moreover, they hypothesize that making the patient aware of the trauma, via Beuer's 'cathartic procedure' using hypnosis if necessary, alleviates the hysteria.

Freud: The foundation of psychoanalysis

The seeds of psychoanalysis were planted by Charcot and Breuer, but they did not develop into a full-fledged system of Psychiatry until Freud worked independently. Building on his theory of unconscious trauma to explain hysteria, Freud hypothesizes that traumatic events may manifest themselves in the mind indirectly in the form of symbols. He then went on to realize that the fantasy lives of the psychotic are full of such symbols, and recovering the original trauma requires investigation of the mechanisms of symbolization.

It was this realization that gives us the basis for psychoanalysis, for it is this realization that allows Freud to argue that the hallucinations and fantasies experiences by the psychotic are not significantly different from the dreams of the sane. Whereas prior to Freud, dreams and hallucinations were thought to be without meaning, after Freud they were seen as full of symbolic representations, the meanings of which were available empirically through systematic investigation of the mechanisms of psychological representation. Freud's proposed mechanisms are introduced in the 'Psychoanalysts' section on page 32 of the game book.

The barrier between the mentally ill and the mentally healthy had been permanently broken.[57] No longer does the theory of psychiatry apply *only* to those who cannot be helped by medicine. Now the theory applies to everyone: a healthy person could become ill through unhealthy habits of mental representation, and ill people could become healthy through the process of discovering their habits of mental representation and recognizing their unconscious traumas.

This conflation of psychiatric conditions and normal life left Freud in the precarious position of having to define 'mental illness.' He did so thus:

> Symptoms—and of course we are dealing now with psychical (or psychogenic) symptoms and psychical illness—are acts detrimental, or at least useless, to the subject's life as a whole, often complained by him as unwelcome and bringing unpleasure or suffering to him. (*Introductory Lecture*, p. 445)

Neurosis v. Psychosis[58]

One of the hallmarks of Freud's theory is his thesis that the there is no hard and fast distinction to be made between the mentally ill and the mentally healthy. His *Introductory Lectures* are structured to introduce the reader to psychopathology in everyday life before extending the analysis of common

57 I am simplifying here a bit. While Freud is commonly believed to originate the idea that dreams and psychotic hallucinations were best understood on a continuum, the ideas appears in the work of the British associationist Alexander Bain (see, e.g. Bain, A. (1903) *Dissertations on Leading Philosophical Topics*, Longmans, Green, and Co., New York and Bombay., p. 45)

58 The distinction between neurosis and psychosis has always been controversial. Consider Pavlov's comment in his 1927 lectures: “Contemporary medicine distinguishes "nervous" and "psychic" disturbances-neuroses and psychoses, but this distinction is, of course, only arbitrary. No real line of demarcation can be drawn between these two groups: it is impossible to imagine a deviation of higher activities from normal without a functional or structural disturbance of the cortex.” (Pavlov, 1927, Lecture 23)

activities to psychotics and neurotic patients. As such, there are no hard and fast definitions of psychosis and neurosis.

During the course of normal development of mentally healthy adults, the ego must become 'reasonable': it must no longer let "itself be governed by the pleasure principle, but obeys the *reality principle*, which also at bottom seeks to obtain pleasure, but pleasure which is assured through taking account of reality, even though it is pleasure postponed and diminished." (p. 444) A neurotic's ego fails to make this transition, and gets stuck at one point in development. Thus, the neurotic's libido and ego are still struggling in a child-like way, but the contents of the struggle have been transformed into objects of adulthood. Neurotic symptoms are the "outcome of a conflict which arises over a new method of satisfying the libido" (p. 446) and a person is ill from neurosis only if "his ego has lost the capacity to allocate his libido in some way" (p. 480). A psychotic patient, however, has lost the battle for the reality principle, and the libido has created its own reality.

The object of a neurosis, then, is relevant to the diagnosis only insofar as it is a stand-in for the actual conflict by the mechanisms of repression, reaction formation, isolation, etc. According to Freud: "clinical psychiatry takes little notice of the outward form or content of individual symptoms, but psychoanalysis takes matters up at precisely that point and has established in the first place the fact that symptoms have a sense and are related to the patient's experience." (p. 318)

See Lectures 22 and 23 of the *Introductory Lectures* for a full discussion of neurosis and its origins.

The Clark Lectures

In 1909, G. Stanley Hall, first president of the American Psychological Association, invited Freud and Jung to give a series of lectures at Clark University. The conference itself was a major moment in the intellectual history of America, as such luminaries as William James, Franz Boas, Adolf Meyer and E.B. Tichner were in attendance, as well as the famed Anarchist Emma Goldman.[59]

After the lectures, James Jackson Putnam, a neurologist in New York City, invited Freud and Jung to retire to his family's Adirondack 'great camp' for the weekend. Putnam became an important advocate for psychoanalysis in the United States, establishing its legitimacy as a treatment for hysteria. While there are articles prior to 1909 on psychoanalysis (notably one by Putnam himself in 1906), we don't find significant discussion of psychoanalysis in the mainstream journals of Psychology until after the Clark lectures.[60] An effort to convince the American public of the scientific nature of psychoanalysis was mounted by Putnam camp attendees A.A. Brill, founder of the New York Psychoanalytic Society, and Ernest Jones, student of Freud. By 1916, Jones had published 20 articles, notes and reviews in the Journal of Abnormal Psychology offering or advocating for psychoanalysis.[61]

Putnam and Freud went on to become close friends, and Putnam spent much of the rest of his career attempting to professionalize and regularize the practice of psychiatry. He founded the American Psychoanalytic Association (APsaA) in 1911, which is still active today. His posthumously published

59 See, for example Clark University's archive: http://www.clarku.edu/research/archives/freud_jung.cfm and the Chronicle of Higher Education's "When Freud Came to Clark U.": http://chronicle.com/article/Freuds-Visit-to-Clark-U/48424/

60 For a discussion, see Hornstein, G. A. (2002). The Return of the Repressed: Psychology's Problematic Relations with Psychoanalysis, 1909-1960. Evolving Perspectives on the History of Psychology. W. E. Pickren and D. A. Dewsbury. Washington, DC, The American Psychological Association.

61 Hornstein, p. 474.

Addresses on Psychoanalysis, which contains a preface by Freud himself, not only seeks to introduce Freudian theory to his scientific community, but also to dispel misunderstanding gained "through the gossip of prejudice and misconception" (Putnam & Jones, 1921, p. 3).

Putnam's influence here cannot be understated. Putnam introduced psychoanalytic ideas to the budding field of medical neurology. His position as a medical doctor at Harvard gave psychoanalysis legitimacy as a medical practice in America, and his stature in the neurological community helped to assuage any doubts about the lack of a physical basis for the hypothetical entities posited by Freud's structural hypothesis.

The story is not all smooth sailing. In 1916, the Princeton philosopher and psychologist Warren Fite reviewed of Jung's *Psychology of the Unconscious* for *The Nation,* writing that it "presents some five hundred-odd pages of incoherence and obscenity in the form of a psycho-analytic interpretation of the experiences of a sentimental young American woman." (Fite, 1916) The fact that the United States was at war with Germany didn't help the psychoanalytic cause: Christine Ladd-Franklin, a student of C.S. Peirce and protege of no less than Hermann Helmholtz as well as one of the first women in the APA, called Freud's theory the product of an "undeveloped... German mind."

What followed is a history of tension between those in the psychological and psychoanalytic communities. Helped by the military's preference for psychoanalysts in the treatment of 'shell-shock' during WWI and 'combat fatigue' in WWII, psychoanalysis gained credibility in the eyes of the American public.[62]

The DSMs

In 1917 during its annual meeting in New York, the American Medico-Psychological Association (now the American Psychiatric Association) in cooperation with the National Commission on Mental Hygiene formed a committee on statistics and charged it with creating a guide for classifying mental illness. The resulting document, *Statistical Manual for the Use of Institutions for the Insane*, was published in 1918 and adopted around the nation. It is available freely on google books. The manual outlined 21 medical-psychological categories:

62 See Chapter 1 of Menninger and Nemiah (2000) for an interesting discussion of this history.

1. Traumatic psychoses	(a) Traumatic delirium (b) Traumatic constitutional (c) Post-traumatic mental enfeeblement (dementia)
2. Senile psychoses	(a) simple deterioration (b) Presbyophrenic type (c) Delirious and confused types (d) Depressed and agitated states in addition to deterioration (e) Paranoid types (f) Pre-senile types
3. Psychoses with cerebral arteriosclerosis	
4. General paralysis	
5. Psychoses with cerebral syphilis	
6. Psychoses with Huntington's chorea	
7. Psychoses with brain tumor	
8. Psychoses with other brain or nervous diseases	The following are the more frequent affections and should be specified in the diagnosis Cerebral embolism Paralysis agitans Meningitis, tubercular or other forms (to be specified) Multiple sclerosis Tabes Acute chorea Other conditions (to be specified)
9. Alcoholic psychoses	(a) Pathological intoxication (b) Delirium tremens (c) Korsakow's psychosis (d) Acute hallucinosis (e) Chronic hallucinosis (f) Acute paranoid type (g) Chronic paranoid type (h) Alcoholic deterioration (I) Other types, acute or chronic
10. Psychoses due to drugs or other exogenous toxins	(a) Opium (and derivatives), cocaine, bromides, chloral, etc. alone or combined (to be specified)

	(b) Metals, as lead, arsenic, etc. (to be specified) (c) Gases (to be specified) (d) Other exogenous toxins (to be specified)
11. Psychoses with pellagra	
12. Psychoses with other somatic diseases	(a) Delirium with infectious diseases (b) Post-infectious psychosis (c) Exhaustion-delirium (d) Delirium of unknown origin (e) Cardio-renal diseases (f) Disease of the ductless glands (g) Other diseases or conditions (to be specified)
13. Manic-depressive psychoses	(a) Manic type (b) Depressive type (c) Stupor (d) Mixed type (e) Circular type
14. Involution melancholia	
15. Dementia praecox	(a) Paranoid type (b) Catatonic type (c) Hebephrenic type (d) Simple type
16. Paranoia or paranoic conditions	
17. Epileptic psychoses	(a) Deterioration (b) Clouded states (c) Other conditions (to be specified)
18. Psychoneuroses and neuroses	(a) Hysterical type (b) Psychasthenic type (c) Neurasthenic type (d) Anxiety neuroses
19. Psychoses with constitutional psychopathic inferiority	
20. Psychoses with mental deficiency	
21. Undiagnosed psychoses	
22. Not insane	(a) Epilepsy without psychosis (b) Alcoholism with psychosis (c) Drug addition without psychosis (d) Constitutional psychopathic inferiority

	without psychosis (e) Mental deficiency without psychosis (f) Others (to be specified)

Table 12: Statistical Manual for the Use of Institutions for the Insane classification of insanity, 1918

In 1928, the New York Academy of Medicine invited the Public Health Service, the Army and Navy Medical Departments and the American Hospital Association to collaborate on a standard nomenclature of disease. That standard was first published in 1933 as *A Standard Classified Nomenclature of Disease*, generally referred to as *The Standard*, and was widely used until at least the 1960s. In its original form, it used the following ten categories:

0 Diseases due to prenatal influences
1 Diseases due to lower plant and animal parasites
2 Diseases due to higher plant and animal parasites
3 Diseases due to intoxication
4 Diseases due to trauma or physical agents
5.0 Diseases due to circulatory disturbances
5.5 Diseases due to disturbances of innervation or of psychic control
6 Diseases due to or consisting of static mechanical abnormality (obstruction; calculus; displacement and gross changes in form etc., due to unknown cause).
7 Diseases due to disorders of metabolism, growth or nutrition
8 New growths
9 Diseases due to unknown or uncertain causes, the structural reaction (generative, infiltrative, inflammatory, proliferate, sclerotic, or reparative) to which is manifest; and hereditary and familial diseases of this nature.
X Diseases due to unknown or uncertain causes, the functional reaction to which is alone manifest; and hereditary and familial diseases of this nature.

Table 13: Standard Classified Nomenclature classification of disease, 1933

You'll notice that the medical classification is entirely based on the origin or cause of a condition, not the symptoms. The opposite appears to be true of the psychiatric classification.

During the WWII, psychiatrists classified patients according to the standards of the branch of the armed forces for which they worked. In 1943, Brigadier General William C. Menninger issued a bulletin called “Medical 203” that laid the foundations for medical classification of mental illness. The Navy, Army and Veterans affairs branches all used slightly different diagnostic criteria and classifications.

In 1949, the International Statistical Classification of Diseases (ICD) included, for the first time, a taxonomy of mental disorders. Its classification system was:

(300-309)	**Psychoses**
300	Schizophrenic disorders (dementia praecox)
300.0	Simple type
300.1	Hebephrenic type
300.2	Catatonic type
300.3	Paranoid type
300.4	Acute schizophrenic reaction
300.5	Latent schizophrenia
300.6	Schizo-affective psychosis
300.7	Other and unspecified
301	Manic-depressive reaction
301.0	Manic and circular
301.1	Depressive
301.2	Other
302	Involutional melancholia
303	Paranoia and paranoid states
304	Senile psychosis
305	Presenile psychosis
306	Psychosis with cerebral arteriosclerosis
307	Alcoholic psychosis
308	Psychosis of other demonstrable aetiology
308.0	Resulting from brain tumour
308.1	Resulting from epilepsy and other convulsive disorders
308.2	Other
309	Other and unspecified psychoses
(310-318)	**Psychoneurotic disorders**
310	Anxiety reaction without mention of somatic symptoms
311	Hysterical reaction without mention of anxiety reaction
312	Phobic reaction
313	Obsessive-compulsive reaction
314	Neurotic-depressive reaction
315	Psychoneurosis with somatic symptoms (somatisation reaction) affecting circulatory

	system
315.0	Neurocirculatory asthenia
315.1	Other heart manifestations specified as of psychogenic origin
315.2	Other circulatory manifestations of psychogenic origin
316	Psychoneurosis with somatic symptoms (somatisation reaction) affecting digestive system
316.0	Mucous colitis specified as of psychogenic origin
316.1	Irritability of colon specified as of psychogenic origin
316.2	Gastric neuroses
316.3	Other digestive manifestations specified as of psychogenic origin
317	Psychoneurosis with somatic symptoms (somatisation reaction) affecting other systems
317.0	Psychogenic reactions affecting respiratory system
317.1	Psychogenic reactions affecting genito-urinary system
317.2	Pruritus of psychogenic origin
317.3	Other cutaneous neuroses
317.4	Psychogenic reactions affecting musculoskeletal system
317.5	Psychogenic reactions affecting other systems
318	Psychoneurotic disorders, other, mixed and unspecified types
318.0	Hypochondriacal reaction
318.1	Depersonalisation
318.2	Occupational neurosis
318.3	Asthenic reaction
318.4	Mixed
318.5	Of other and unspecified types
(320-326)	**Disorders of character, behaviour, and intelligence**
320	Pathological personality
320.0	Schizoid personality
320.1	Paranoid personality
320.2	Cyclothymic personality
320.3	Inadequate personality
320.4	Antisocial personality

320.5	Asocial personality
320.6	Sexual deviation
320.7	Other and unspecified
321	Immature personality
321.0	Emotional instability
321.1	Passive dependency
321.2	Aggressiveness
321.3	Enuresis characterising immature personality
321.4	Other symptomatic habits except speech impediments
321.5	Other and unspecified
322	Alcoholism
322.0	Acute
322.1	Chronic
322.2	Unspecified
323	Other drug addiction
324	Primary childhood behaviour disorders
325	Mental deficiency
325.0	Idiocy
325.1	Imbecility
325.2	Moron
325.3	Borderline intelligence
325.4	Mongolism
325.5	Other and unspecified types
326	Other and unspecified character, behaviour and intelligence disorders
326.0	Specific learning defects
326.1	Stammering and stuttering of non-organic origin
326.2	Other speech impediments of non-organic origin
326.3	Acute situational maladjustment
326.4	Other and unspecified

Table 14: ICD-6 classification of mental diseases, 1949

In the interest of unifying these different classification schema, the American Psychiatric Association voted to create the first Diagnostic and Statistical Manual (DSM). The nomenclature committee

adapted the Medical 203 bulletin into the DSM and circulated it to a randomly selected sample of the membership (10%). When it was overwhelmingly approved by those who replied, the APA adopted it as the standard for diagnosis in medical treatment of psychological disorders. It was published in 1952, and is available online at http://www.psychiatryonline.com/DSMPDF/dsm-i.pdf

The first DSM distinguished between "Disorders caused by or associated with impairment of brain tissue function," "Mental Deficiency," "Disorders of psychogenic origin or without clearly defined physical cause or structural change in the brain" and "Nondiagnostic Terms for Hospital Record." This fourth category included "Alcoholic intoxication (simple drunkenness)," and "Dead on admission." It is the third category, those without a physical cause, that is of the most interest to us (the corresponding category of the ICD-6 is included in the right most column):

Psychotic Disorders		
--7	Disorders due to disturbance of metabolism, growth, nutrition or endocrine function	
000-796	Involuntary psychotic reaction	(302)
--x	Disorders of psychogenic origin or without clearly defined tangible cause or structural change	
000-x10	Affective reactions	(301.2)
000-x11	Manic depressive reaction, manic type	(301.0)
000-x12	Manic depressive reaction, depressive type	(301.1)
000-x13	Manic depressive reaction, other	(301.2)
000-x14	Psychotic depressive reaction	(309.0)*
000-x20	Schizophrenic reactions	(300.7)*
000-x21	Schizophrenic reaction, simple type	(300.0)
000-x22	Schizophrenic reaction, hebephrenic type	(300.1)
000-x23	Schizophrenic reaction, catatonic type	(300.2)
000-x24	Schizophrenic reaction, paranoid type	(300.3)
000-x25	Schizophrenic reaction, acute undifferentiated type	(300.4)
000-x26	Schizophrenic reaction, chronic undifferentiated type	(300.7)
000-x27	Schizophrenic reaction, schizo-affective type	(300.6)
000-x28	Schizophrenic reaction, childhood type	(300.8)
000-x29	Schizophrenic reaction, residual type	(300.5)
000-x30	Paranoid reactions	(303)
000-x31	Paranoia	(303)
000-x32	Paranoid state	(303)
000-xy0	Psychotic reaction without clearly defined structural change, other than above	(309.1)*
Psychophysiologic autonomic and visceral disorders		
--55	Disorders due to disturbance of innervation or of psychic control	
001-580	Psychophysiologic skin reaction	(317.3)
002-580	Psychophysiologic musculoskeletal reaction	(317.4)
003-580	Psychophysiologic respiratory reaction	(317.0)
004-580	Psychophysiologic cardiovascular reaction	(315.2)
005-580	Psychophysiologic hemic and lympathic reaction	(317.5)

006-580	Psychophysiologic gastrointestinal reaction	(316.3)
007-580	Psychophysiologic genito-urinary reaction	(317.1)
008-580	Psychophysiologic endocrine reaction	(317.5)
009-580	Psychophysiologic nervous system reaction	(318.3)
00x-580	Psychophysiologic reaction of organs of special sense	(317.5)
Psychoneurotic Disorders		
--x	Disorders of psychogenic origin or without clearly defined tangible cause of structural change	
000-x00	Psychoneurotic reactions	(318.5)*
000-x01	Anxiety reaction	(310)
000-x02	Dissociative reaction	(311)
000-x03	Conversion reaction	(311)
000-x04	Phobic reaction	(312)
000-x05	Obsessive compulsive reaction	(313)
000-x06	Depressive reaction	(314)
000-x0y	Psychoneurotic reaction, other	(318.5*)
Personality Disorders		
--x	Disorders of psychogenic origin or without clearly defined tangible cause of structural change	
000-x40	Personality pattern disturbance	(320.7)
000-x41	Inadequate personality	(320.3)
000-x42	Schizoid personality	(320.0)
000-x43	Cyclothymic personality	(320.2)
000-x44	Paranoid personality	(320.1)
000-x50	Personality trait disturbance	(321.5)
000-x51	Emotionally unstable personality	(321.0)
000-x52	Passive-aggressive personality	(321.1)
000-x53	Compulsive personality	(321.5)
000-x54	Personality trait disturbance, other	(321.5)*
000-x60	Sociopathic personality disturbance	(320.7)*
000-x61	Antisocial reaction	(320.4)
000-x62	Dyssocial reaction	(320.5)

000-x63	Sexual deviation. *Specify supplementary term*	(320.6)
000-x64	Addiction	
000-x641	Alcoholism	(322.1)
000-x642	Drug addiction	(323)
000-x70	Special symptom reactions	(321.4)*
000-x71	Learning disturbance	(326.0)*
000-x72	Speech disturbance	(326.2)*
000-x73	Enuresis	(321.3)
000-x74	Somnambulism	(321.4)
000-x7y	Other	(321.4)*
Transient Situational Personality Disorders		
000-x80	Transient situational personality disturbance	(326.4)*
000-x81	Gross stress reaction	(326.3)*
000-x82	Adult situational reaction	(326.6)*
000-x83	Adjustment reaction of infancy	(324.0)*
000-x84	Adjustment reaction of childhood	(324.1)*
000-x841	Habit disturbance	(324.1)*
000-x842	Conduct disturbance	(324.1)*
000-x843	Neurotic disturbance	(324.1)*
000-x85	Adjustment reaction of adolescence	(324.2)*
000-x86	Adjustment reaction of late life	(326.5)*

Table 15: DSM-I Classification of mental disorders, 1952

The APA published the revised DSM-II in 1968. It's classification is included as an appendix.

The Rise of Psychopharmacology

Because psychoanalysis tended to be confined to clinical, military settings in the US, a kind of stable truce—one might even say a 'cold war'--settled over the conflict between behaviorism and psychoanalysis. By and large, psychoanalysis confined itself to the medical setting; while behaviorism confined itself to pure research. There were, no doubt, volleys across the bow of one or the other from time to time. But until Skinner's wide-ranging proposals for behaviorism as social reformation, there were few open hostilities.

Much of the scientific credibility for psychoanalysis turned on its success in treating psychotic patients. Medical Doctors tend not to worry so much about the putative mechanism of a therapy, so long as that

therapy works for the individual patient in question. It isn't uncommon for a drug to help some small portion of the population and fail with another. Generalizations to universal laws are uncommon in the practice of medicine, and much the of time the cause of a certain medical condition remains unknown, even if we understand how to cure it (consider cancers like lymphoma, for example). Thus, when psychologists objected that psychoanalysis did not generalize, its mechanisms were untestable, and as a treatment it was highly individualistic, medical practitioners were not overly impressed.

All of that changed starting in 1955 when Wallace Labs began marketing the world's first popular psychotropic for the treatment of anxiety: Miltown. The Wallace Lab claimed that Miltown controlled anxiety without reducing mental function, allowing patients to return to their normal lives. It was quickly followed by Trofranil, an antidepressant, in 1959; Librium, an anti-anxiety medication, in 1960; and Valium in 1963.

These drugs did—in short order—what years of psychoanalysis, hypnosis, electro-shock therapy (the decedent of Beard's treatments) and confinement could not: they allowed patients with crippling anxiety to return to normal or close-to-normal functioning.

Setting the stage for 1971

Since the origin of psychiatry, there has been a distinction made between those disorders that can be directly attributable to a biological dysfunction of the brain and those that cannot. The former were classified as 'neurological,' and the latter 'psychiatric.' It is this inability to find a biological etiology of the disorder defines the domain of psychiatry.

As it becomes increasingly clear that psycho-pharmaceuticals have an effect on disorders once believed to be independent of the biology of the brain, what will happen to the field of psychiatry?

In 1961... Midtown Manhattan Study...

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Brief History of Homosexuality in America

While homosexual behavior has appeared throughout human history, the notion of homosexuality as an orientation or personality is relatively recent. The etymology of the word 'homosexual' itself shows the intimate connection between the idea of sexual orientation and the history of psychiatry. According to the OED, the term first appears in print in English in C. G. Chaddock translation of R. von Krafft-Ebing 1892 *Psychopathia Sexualis*. Relevant sections are reproduced in the appendix.

The idea of homosexuality as a lifestyle is, in the English speaking world at least, indelibly linked to the public persona of Oscar Wilde. Wilde was a flamboyant public figure, known for dressing immaculately and flamboyantly, his sharp wit and his talent at dinner conversation. While he was studying classics at Oxford, he began advocating aestheticism, the view that aesthetic values trump moral or social values in the understanding of art and literature. In 1895, he and his companion Alfred Taylor were convicted of acts of 'gross indecency'[63] and sentenced to two years hard labor.

Their trial was 'the trial of the century' in the English upper-class, and to this day, many of Wilde's personal characteristics inform the common stereotypes of homosexual men. For example: fastidiousness with respect to personal appearance, extraordinary wittiness and social adeptness, esp. with upper-class women, are all traceable to Wilde himself.

The next fifty years were not kind to gay folks. "Treatments" for homosexuals included surgical interventions such as castration, vasectomies, lobotomies, sterilization, clitoridectomies, hysterectomies; chemical interventions such as sexual stimulants, depressants, hormonal injections, and pharmacological shock; psychological interventions included adjustment therapy, psychoanalysis, hypnosis, aversion therapy that included electric shock and desensitization[64]; and social psychological interventions patterned on Alcoholics Anonymous like 'Homosexuals Anonymous' and others.

One of the saddest stories of this era is that of Alan Turing, who I mentioned in the previous section. Turing was one of the greatest mathematicians and logicians of his era, if not the greatest. During WWII, he worked at Bletchley park as one of Churchill's famed code-breakers. His efforts in breaking the German codes lead directly to the development of modern logic and the invention of the electronic computer. He is generally considered to be the founder of both modern cryptography and computer science. Quite literally, Turing is to the contemporary information age what Newton was to the age of mechanics.

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63 In Victorian England, 'gross indecency' was defined as sexual acts between men that did not rise to the level of 'buggery'.

64 There is a superb website in the UK that is collecting stories of patients, doctors and nurses from this era. All are deeply disturbing, some downright terrifying. See http://treatmenthomosexuality.co.uk/. I'll quote just one example here, as it so perfectly illustrates classical conditioning:

> "We need to remember that the discussions that went on at Maudsley in the early 50s were constantly searching for ways in which we could understand the relationship between events, so again referring to the ideas put forward by Pavlov, Skinner and Wolpe, if a situation produces anxiety and at the same time there is another even occurring then buy the process of conditioning it's quite likely that the reaction of anxiety will become associated with the unconditioned stimulus. By thinking along those lines it seemed to me that if the process of sexual arousal and gratification is linked with something, it may well become the preferred method of seeking gratification. It seemed to me that if a person wanted to stop being involved in and interested in make figures—so long as he had bisexual potential or interests—we might be able to utilize the other half of the spectrum of potential arousal signals. And, if we did that often enough, he then might be gratified by femininity."
>
> Form 'A Psychological Career', anonymous testimonial from http://www.treatmenthomosexuality.co.uk/.

But Turing was also gay. In 1952, he was prosecuted and convicted for being a homosexual. Sentenced to hormone therapy and stripped of his military clearance, he committed suicide on June 7th, 1954. In 2009, the British Government started a program of accepting online petitions from citizens of the UK. One of the first to be submitted, and promoted by Richard Dawkins, was a call for an official apology to Alan Turing for unjust prosecution. On 10 September 2009, Prime Minister Gordon Brown issued a formal apology to Alan Turing, stating:

> It is thanks to men and women who were totally committed to fighting fascism, people like Alan Turing, that the horrors of the Holocaust and of total war are part of Europe's history and not Europe's present.
> So on behalf of the British government, and all those who live freely thanks to Alan's work I am very proud to say: we're sorry, you deserved so much better.[65]

During this period, advocates for homosexuals (at this time called 'homophile' organizations) focused primarily on changing the stereotypes of the homosexual as a step towards ending the criminalization of homosexual acts as well as the psychological and medical 'treatments.' There was little activity within the scientific and academic communities on this issue. That all started to change when a young social psychologist named Evelyn Hooker started teaching at UCLA.

During WWII, young men and women who were accused of homosexuality in Pacific theater of operations for the US Military tended to be discharged in California ports, including San Diego, Long Beach and San Francisco. Many, if not most, of these young people could not return to their hometowns because of their dishonorable discharge from the military. As a result, a organic community of homosexuals began taking shape in many of these cities.

Hooker became friends with one of her graduate students, Sam Fromm. Sam was gay. In 1943, he challenged her to study 'people like him' to determine if they were mentally ill (specifically 'neurotic') independently of the biases against homosexuality inherent in the psychiatric tradition.[66] In a 1998 interview, Hooker explained the significance of this phrase:

> "This bright young man, somewhere in his early thirties, had obviously been thinking about this for a long time. And by 'people like us' he meant, 'We're homosexual, but we don't need psychiatrists. We don't need psychologists. We're not insane. We're not any of those things they say we are." (Eric Marcus, Windy City Times, October 31, 2007 • vol 23 no 07)

During the 1940's, Evelyn Hooker became a trusted 'outsider' of the gay community in L.A., but didn't want to conduct research on people she saw as her friends.

Kinsey

In 1948, Alfred C. Kinsey (1894 – August 25, 1956) published *Sexual Behavior in the Human Male*. It was revolutionary.

Kinsey and his assistants had interviewed 5300 white males from all walks of American life. The interviews required up to 521 questions, depending on the interviewees experiences, with the average being around 300. Kinsey reported that a large number of men—up to 45%—reported having at least one homosexual encounter during his adolescence. These encounters are most frequent at young age,

65 For the full statement, see http://www.number10.gov.uk/Page20571

66 You'll recall that Freud and the psychoanalytic tradition that followed him believed homosexuality was a regression fixation caused by an underlying, probably narcsisitic, neurosis. See *Introductory Lectures* p. 376-384 and 529-531*)*

dropping to a stable 10% of the population by age 20-25. These numbers, Kinsey fears, may not tell the whole story because:

> The social significance of the homosexual is considerably emphasized by the fact that both Jewish and Christian churches have considered this aspect of human sexuality to be abnormal and immoral. … Social custom and our Anglo-American law are sometimes very severe in penalizing one who is discovered to have had homosexual relations. In consequence, many persons who have had such experiences are psychically disturbed, and not a few of them have been in open conflict with the social organization. (p. 610)

The Kinsey report found that homosexual activity as a common part of male sexual development. Self-identifying as a homosexual, or engaging exclusively in homosexual activity, was found to be more rare. But at 10%, almost twice as high as any previous scientific estimate. Almost as importantly, he identified the source of psychic disturbance *not* to be the homosexual activity itself, but the social structures that penalize such behavior.

Early 'Homophile' movements

Two years after the publication of the Kinsey report, a group of 'homophile' activists founded the Mattachine society, which is now generally recognized as the first national gay-rights organization.[67] The Mattachine society, named for a European tradition of theater masks, sought to change the prevailing view of homosexuality by presenting the membership as no different than the mainstream heterosexual society. Its members dressed in suits and skirts, and showed no 'outward signs' of homosexuality. These 'outward signs' are, of course, those stereotypes we identified as originating with Oscar Wilde. Mattachine society demonstrations—held annually in front of Independence Hall in Philadelphia on July 4th—were sober affairs of men in gray suits and women in dresses walking up and down in straight lines.

Connecting the dots: Evelyn Hooker

After the publication of the Kinsey report, Hooker finally decided to meet Fromm's challenge. She designed an experiment to determine if homosexuals were mentally disturbed. In 1954, she received a grant from the National Institute on Mental Health to run her study. She recruited 30 homosexuals the Mattachine society as well as the gay community generally. An equal number of heterosexual men were recruited from civil organizations around the city. Individuals in the groups were matched with respect to age, IQ and education level. All people currently in therapy for mental health were excluded from the study. This alone was a major step forward in the study of male homosexuality, as all previous psychological studies had found their subjects in psychiatric wards, army barracks or clinical settings.

Hooker tested the resulting 60 men using standard psychological tests: the Rorschach, Thematic Apperception Test (TAT) and the Make-A-Picture-Story Test (MAPS). The data was sent to psychologists who were experts on reading these tests, and the tests scored. Hooker found no significant difference was found between the groups, indicating that homosexual men were no more likely to have mental disturbances (i.e. to be neurotic) than equivalent heterosexual men.

Hooker presented her findings at the 1956 APA in Chicago. Her paper was published in 1957,[68] shortly

67 The 'Society for Human Rights' was founded in 1924, but never gained national prominence.

68 Hooker, Evelyn. "The Adjustment of the Male Overt Homosexual." Journal of Projective Techniques 21(1957): 18-31.

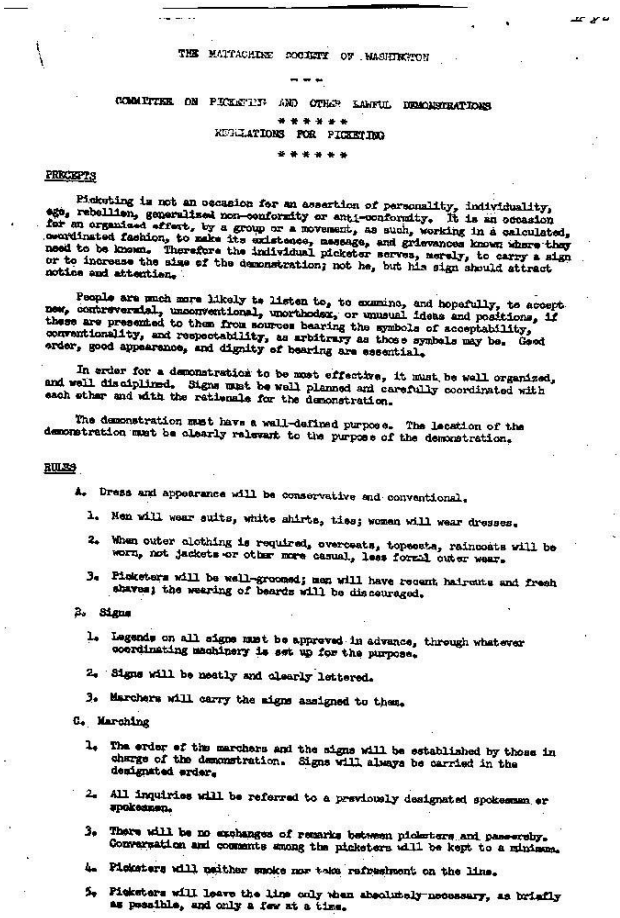
after Sam Fromm's death.

Stonewall: The street activists

By the 1960s, tensions were growing in the gay community. Another group of younger gay[69] activists were growing irritated with both the slow progress of the Mattachine society and its restrictions on behavior. In 1968, a group of young 'street-activists' disrupted a meeting of the American Medical Association in New York by shouting down Charles Socarides, a Psychiatrist known for his psychoanalytic treatment of homosexuals.

Everything changed forever on Saturday, June 28, 1969 at 1:20 AM, when the police raided the Stonewall Inn in Greenwich Village. The gay and lesbian patrons of the Stonewall resisted arrest. Events escalated. The riots that followed lasted until Wednesday night, July 3rd.

On the Fourth, the gay community's attention turned to Independence Hall in Philadelphia and the Mattachine society's annual march. As usual, Frank Kameny and Barbara Gittings, long time leaders of that gay and lesbian advocacy group, required the women to wear skirts and men suits. When couples held hands, Kameny famously scolded "None of that!" But the tide had turned. The young protestors from Stonewall would not conform. Kameny's approach of assimilation had been surpassed by the direct action begun at Stonewall. Militant groups such as the Gay Liberation Front and the Gay Activist Alliance sprouted up across the country overnight (both started in New York). Plans were made to confront those who continued to classify homosexuality as a mental disorder, and directly challenge those who continued to treat homosexuals using barbaric methods.



THE MATTACHINE SOCIETY OF WASHINGTON

COMMITTEE ON PICKETING AND OTHER LAWFUL DEMONSTRATIONS

* * * * * *

REGULATIONS FOR PICKETING

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PRECEPTS

Picketing is not an occasion for an assertion of personality, individuality, ego, rebellion, generalized non-conformity or anti-conformity. It is an occasion for an organized effort, by a group or a movement, as such, working in a calculated, coordinated fashion, to make its existence, message, and grievances known where they need to be known. Therefore the individual picketer serves, merely, to carry a sign or to increase the size of the demonstration; not he, but his sign should attract notice and attention.

People are much more likely to listen to, to examine, and hopefully, to accept new, controversial, unconventional, unorthodox, or unusual ideas and positions, if these are presented to them from sources bearing the symbols of acceptability, conventionality, and respectability, as arbitrary as those symbols may be. Good order, good appearance, and dignity of bearing are essential.

In order for a demonstration to be most effective, it must be well organized, and well disciplined. Signs must be well planned and carefully coordinated with each other and with the rationale for the demonstration.

The demonstration must have a well-defined purpose. The location of the demonstration must be clearly relevant to the purpose of the demonstration.

RULES

A. Dress and appearance will be conservative and conventional.

1. Men will wear suits, white shirts, ties; women will wear dresses.
2. When outer clothing is required, overcoats, topcoats, raincoats will be worn, not jackets or other more casual, less formal outer wear.
3. Picketers will be well-groomed; men will have recent haircuts and fresh shaves; the wearing of beards will be discouraged.

B. Signs

1. Legends on all signs must be approved in advance, through whatever coordinating machinery is set up for the purpose.
2. Signs will be neatly and clearly lettered.
3. Marchers will carry the signs assigned to them.

C. Marching

1. The order of the marchers and the signs will be established by those in charge of the demonstration. Signs will always be carried in the designated order.
2. All inquiries will be referred to a previously designated spokesman or spokesmen.
3. There will be no exchanges of remarks between picketers and passersby. Conversation and comments among the picketers will be kept to a minimum.
4. Picketers will neither smoke nor take refreshment on the line.
5. Picketers will leave the line only when absolutely necessary, as briefly as possible, and only a few at a time.

Illustration 1: The Mattachine Society of Washington, Rules for Picketing

And those plans included San Francisco, site of the 1970 American Psychiatric Association's annual convention. And you already know what happened there.

69 The use of the word 'gay' as a replacement for 'homosexual' dates from precisely this time with precisely these people. The Mattachine society and the older organizations used 'homosexual' and 'homophile' to refer to themselves. 'Gay' was an intentional word chosen by the new generation of street-activists that replaced the Mattachine society.

Further Resources

The story of Hooker and Fromm is retold in a number of places, including in

> "Hooker, Evelyn" in Aldrich, R., & Wotherspoon, G. (2001). Who's who in contemporary gay and lesbian history. Routledge.

Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1998). *Sexual behavior in the human male*. Indiana University Press.

Brief History of Linguistics

THIS PART LEFT BLANK FOR THE TIME BEING

Pre-History
Cartesian problem
Port Royal Grammar
Empiricists

Structuralism

Bloomfield structuralism in American, originated with Saussuer's 'Course in General Linguistics' from 1916. Bloomfield was sympathetic to Watson's behaviorism. Structuralism in Europe became identified with sympathetic movements in Anthropology (), Psychoanalysis and Marxism, but is largely known through the critiques by the 'Post-Structuralists' who rejected that movement.

Bloomfieldian structuralism was different.

Chomsky 1957:
3.1: argues for 'levels of representation' as necessary for adequate explanation. This is a theme throughout cognitive science, articulated most clearly in the work of David Marr.

2.1 Explicit analogy to mathematical, formal languages, and the rejection of the Markov machine as adequate. This argument is simple and easy enough to repeat.

Big point: pg 32. Linguistic processing requires 'phrasing' – which is analogous to Millers' 'chunking' in memory, and potentially analogous to the Gestalt's categorization.

A Primer on Research Methods[70]

Let's start with a plausibly empirical claim—one that you may believe:

(A) To be educated, one must study.

How might one investigate that claim scientifically? Notice, first of all, that it is a general claim. 'One' is a pronoun that could stand for any person, so the claim is universal in nature. We cannot claim that a universal claim like this is *true* unless it is true for every person. But that is empirically impossible to verify.

One might think, then, that claims such as (A) require *a priori* conceptual analysis—like the methods used frequently in Philosophy or Math—one might argue that the concept of 'being educated' entails the concept of 'study'. Or one could argue that the negation of (A) implies a contradiction.

The problem with these techniques, as you might imagine, is that concepts are not universally shared. One person or culture might have a slightly different concept of 'being educated' than another. And if the concepts can change, the conceptual analysis will not hold up. It follows, then, that the *a priori* technique is no more universal than any other method.

So how do we investigate a claim such as (A) empirically?

The first step is to recognize that (A) will never be proven true. We can find evidence to support belief in (A), and we can use (A) to construct programs that help people become educated. But we cannot ever say that (A) is *true* universally. Evidence adduced in favor of (A) can take many forms:

Observational Research

Observational research seeks to observe behavior without intervening in the situation where that behavior takes place. It is, of course, an impossible ideal. The observer's presence in any situation necessarily changes the behavior that is meant to be observed. A scientific observation, then, should take significant steps to minimize the impact of the observation on the behavior being observed.

Naturalistic observation

In naturalistic observation, the observer seeks to minimize his or her impact on the behavior observed by becoming a part of the situation in which the behavior occurs. In the case of (A), then, a naturalistic observer might disguise himself or herself as a college student and join a community of people seeking education. The scientist would then carefully document the ways in which people study, and their levels of education.

70 In what follows, I present a very basic taxonomy of research methods in psychology and psychiatry. This is not meant to be an exhaustive survey or detailed introduction. It is meant to give students the framework for understanding some of the diversity of methods used in gathering evidence. I designed this section so that the students will be able to recognize the terminology in common use in psychological research in 1970. As such, I will ignore significant topics in research methods—for example, we will not cover many of the statistical concept necessary for truly understanding contemporary psychology. Interested students are highly encouraged to take their psychology department's research methods course.

Systematic observation

A systematic observation differs from a naturalistic observation in so far as the behaviors observed are classified according to a *coding system* and counted according to their frequency or their duration. In the case of (A), you are probably wondering what it means 'to be educated' or what it means 'to study.' "Studying,' after all, covers reading, writing, doing problem sets, investigating online, conducting research in labs, etc. A naturalist gathering evidence for (A) would record all these behaviors as they happen in descriptive prose. A systematic observer will look only for behaviors that fit the codes he or she has previously determined count as 'studying.'

Naturalistic observation, as a result, will catch new and novel instances of studying-behavior that systematic observation will not. Consider 'crowd-sourcing' answers to study questions on twitter. A systematic observation set up prior to twitter's invention would not be able to count this as an instance of 'studying' unless they adapted their codes, which in turn would introduce unreliability into the data. A naturalist has no such problem. On the other hand, the naturalist cannot tell you, for example how much studying is necessary for being educated. Or how individuals in the community devide their time between the different tasks of studying.

A systematic observer has choices to make as well: do you record the amount of time a behavior occurs, or the frequency? We all know that the sheer amount of time spent studying can be misleading - is it possible to code for study-behaviors that indicate 'quality' study time from merely looking like one is studying?

Case Studies

Case studies are individual cases that highlight an aspect of the research question. In the case of (A), it might be interesting to produce a case study of an individual who was educated but never studied. Or someone who studied a great deal, but never fully became educated.

Case studies are often used to distinguish between two concepts that were previously believed to always co-occur. In the case of memory, for example, the patient named 'HM' demonstrated that declarative memory (memory of facts) can be separated from memory for skills.[71] One case in which these two behaviors come apart is enough to show that the two *can* come apart, and showing that two things *can* come apart is enough to show that they are not the same thing.

In the case of (A), if someone were to argue by conceptual analysis that 'studying' and 'being educated' are necessarily the same thing, a single case of someone's being educated without studying, or vice versa, would be enough to show that these two are not the same concept.

Medicine often relies on case studies to progress, in part because of ethical restrictions on experimentation. But is very, very important to notice what case studies can and cannot show. A case study is a datum—a single point of data. They are useful in making distinctions (as in the last paragraph) and delineating new diseases. Charcot's work, for example, was based entirely on case studies. As was most of the early work in neurology, including Broca's famous localization of the speech area of the brain. But they are almost useless in crafting therapies for those diseases. After all, just because a treatment works in a single individual does not mean it will work in others. But showing

71 See Scoville, W.B., & Milner, B. (1957). "Loss of Recent Memory After Bilateral Hippocampal Lesions" Journal of Neurology, Neurosugery and Psychiatry. 20: 11-20

that a single person *can* get sick in this particular way shows that there is a way in which other people *might* get sick.

Variables

In order to move forward in our investigation of (A), it is then necessary to 'operationalize' what we mean by 'being educated' and 'studying.' Notice that I do not say 'define' here, as offering a definition is an attempt to capture the was in which the word is used by speakers of the language. That is not what we want to do . We want a measurable behavior that is recognizably related to the commonsense concept. Harry Harlow's work on 'love,' for example, operationalizes the pre-theoretical concept 'love' in terms of a specific set of behaviors, it does not attempt to define the concept 'love' as it is used by speakers of English.

(A) mentions two variables: 'being educated' and 'studying', and claims that 'studying' is necessary for 'being educated.' (A) then makes a claim about a relationship of dependence between two distinct variables: 'being educated' depends on 'studying.'

Independent Variables v. Dependent Variables

In the social sciences, we call the variable that putatively depends on another variable the *dependent variable*. The variable that does not is called the *independent variable*. This is not to claim that the independent variable does not depend on some other variable—'studying' may depend on economic independence, for example—but that is the subject of a different study.

An empirically investigatable claim is one that posits a relationship between two variables. That relationship can take a number of forms. As mentioned before, one might think that (A) is a claim of logical necessity: i.e. that it is impossible to be educated without studying. Claims of that sort are the subject of philosophy and mathematics, and open to refutation through case studies.

The more interesting claims for our purposes are claims that posit a causal or correlational relationship. One might read (A) as saying that

(A1) 'studying causes being educated.'

Or that

(A2) 'studying is correlated with being educated.'

Notice that (A1) differs from (A2) and both differ from (A) itself. This is most clear if we consider how we might falsify each. (A) is made false by a single case of an educated person who has not studied, or someone who has studied but is not educated. Falsifying (A1) is not so easy. Philosophers have debated what (A1) means for centuries, and that is the subject for a different class. There is a clear and well-defined mathematical relationship posited in (A2). When one variable is correlated with another variable, it means that one can predict, with a specified degree of certainty, the value of one variable given the other. Thus, if 'being educated' is highly correlated with 'studying', I can predict your level of education with a high level of certainty if I know your level of studying.

But in order to establish a mathematical relationship between two variables, we need to measure the values of those variables in mathematical terms.

Measuring Variables

A variable can be measured according to a number of different scales: nominal, ordinal, interval, and ratio are common.

- *Nominal scales* place entities or behaviors into discrete categories: we may choose to say that one is either 'studying' or 'not' in this case.
- *Ordinal scales* place entities on a scale: we may choose to rank people according to their level of 'education' in this case. Notice that using an ordinal scale requires that we say something about the magnitude of the intervals between entities on this scale. A rank order where a rank of '1' is the most educated person does not imply that the person ranked '5' is twice as educated as a person ranked '10'. It does imply that a person of any rank is more educated than each person with a numerically higher rank.
- *Interval scales* are ordinal scales where the magnitude of the interval between values is held constant. If we are going to measure 'studying' by the amount of time spent studying, we can use an interval scale: because the amount of time in 30 minutes is exactly ½ that of the amount of time in 60 minutes.
- *Ratio scales* are interval scales where there is an absolute zero (unlike time, for example).

Notice that we have not discussed yet *how* these variables are measured according to these scales. Suppose that we operationalize 'study' in terms of time spent studying and measure it with the standard ordinal scale of hours and minutes. We still have to ask how we measure the value of 'study' for any given individual. We could ask that person to recall the number of hours spent in the last week. We could ask that person to keep a log of all studying activity over the next week. We could follow that person around for a week and write down the amount of time spent studying. Or we could set up a video camera at the front door of the library and record the time at which the person enters and leaves, assuming that all the time in between those events was spent studying.

Each of these approaches would yield interesting data. If we can do the same thing with 'being educated', each variable will have quantified value which then can be compared to the other. Notice, however, that regardless of what approach one selects, one will overlook some instances of 'studying,' and maybe count behaviors that are not normally considered 'studying.'

Naturalistic observation provides rich amount of information about a given behavior, but it is also the least easy to use as the basis for comparison between variables, people or populations. Reducing the richness of the information to some heuristic approximation of the behavior allows us to make precise comparisons between variables, peoples and populations—and all operationalizations are reductions of information via heuristic approximations.

Each operationalization has its advantages and disadvantages, as you might suspect. But without it, comparisons between individuals and populations would be virtually impossible.

Reliability

A measurement of a variable is 'reliable' if it consistently produces the same measurement given the presentation. Take our example of 'being educated.' There are many ways to measure the extent to

which a person is educated.

Grades, for example, are one measurement. If a grading system is reliable across subjects, then the same quality of work would receive the same grade, independently of the personality, political persuasion, etc. of the students being graded. If a grading system is consistent across professors (or teaching assistants), the same work would get the same grade in the same course taught by different professors. If a grading system is reliable across time, then the same quality of work done today would be receive the same grade as it did in previous generations. It should be obvious that many of the current controversies in higher education (grade inflation, reliance on graduate students for teaching tasks, etc.) that haunt higher education are, in many respects, issues of the reliability of grading systems.

In any study of behavior, the reliability of a measurement becomes absolutely vital. If the study is observational in nature, the reliability of the coding system must be systematically tested throughout the course of observation. This is not only true when there are multiple observers coding the behavior, but even when there is just one—'coding drift' refers to the tendency of categories to extend and contract over the course of a study.

Measuring Reliability

Suppose that two professors are teaching two sections of the same class with the same textbook and same assignments. The two sections have equal numbers of students, who were placed into the two classes randomly. The classes are large enough that any outliers either way will not effect the statistics. In such a scenario, if one of the professors gives a higher number of 'A's to the same population, it is reasonable to conclude that that professor has a different sense of what an 'A' means that the other professor. Thus, one can quickly calculate the degree of reliability between two observers by calculating the rate at which each observer assigns the different codes to the population. When reliable, we expect a 'joint probability of agreement': each observer has the same probability of assigning the codes to the given population.

As you might expect, this measurement says nothing about which members of the population get getting what codes: the two professors may agree that their grade distribution will fit a strict curve, but they evaluate the work in completed inverted ways—and 'A' for one would be 'F' for the other. So long as there were only 5 'A's and 5 'F's, the professors would have a joint probability of agreement.

In 1960, Jacob Cohen proposed a measurement in the journal E*ducation and Psychological Measurement.* Cohen's Kappa, as it is now known, is simply defined as:

Pr(a) is the observed probability of the observers agreeing, and Pr(e) is the probability of them agreeing by chance. There is, of course, a great more than can be said about calculating reliability of observation, but that will be left for future work.

Reliability of mechanisms.

If the study makes use of mechanisms for measuring variables (such as a pressing a lever), the

mechanism must be tested for reliable recording on a regular basis. For example, if grades are calculated automatically by a computer scoring system, for example, one must regularly verify that the system itself card-reader itself is reading the dots on the answer sheet correctly.

The same concerns hold for self-reporting studies and surveys: over time, the way a survey is understood by the participants may change. A freshman may report his or her workload as 'heavy' in the first semester of college, but recognize by senior year that that it was actually 'light.'

Experimental Interventions

Once we have an operational definition of our variables, we can begin to design an experiment to establish the degree of correlation between those variables.

The first step is, of course, establishing the population to be studied. As you probably noticed, the examples in the previous section assume that the proper population to study in establishing (A) was college students. This is by no means the only population that is 'educated' or that 'studies.' Our experiment might be very different if our population was rhesus monkeys, for example. The population to be studied is often implicit in the process of operationalization, but made explicit in the experimental design.

The basic idea of all experimental design is to measure the degree to which the dependent variable varies as a function of the independent variable. It is the responsibility of the designer, then, to rule out all other possible factors that might cause variation in the dependent variable *other than* the independent variable. Let us return to (A2). Suppose we operationalize 'study' as 'amount of time spent studying in 1 week according to self-reported memory' and 'being educated' as 'self-reported confidence in one's own education on a ordinal scale of 1-7 where 1 is 'completely educated' and 7 is 'totally uneducated'.'

To determine the extent of the dependence of 'being educated' on 'studying', we need to be able to vary 'studying' systematically and compare it to the value of 'being educated.' The easiest way to do this is to find two populations, one where the independent variable is locked (the 'control' group), and one where the independent variable is manipulated (the 'experimental' group). Let us then take a population of students and split them between two groups. One is instructed to study normally for a week, and the other instructed to study twice as much as normal. Then we ask each group to measure their levels of 'education,' and compare the results.

It is plausible that students at Ivy League colleges may overestimate their level of education if asked to compare themselves to students at large state universities. The social-cultural bias implicit in our notion of 'being educated' is a confound in this experiment. In order to truly control it, we would have to operationalize 'being educated' in some way other than self-evaluation. Suppose we operationalize 'being educated' as 'scores on a test of literary allusions taken from the Norton Anthology of Literature.'

Now suppose that our groups just happened to result in only English majors in one and Math majors in the other. The results of the 'education' measure will plausibly be skewed in some important way. We then must require that the population be randomly selected and assigned to the two groups. These are standard techniques for controlling confounding variables.

Internal and External Validity

When all possible confounds are dealt with and the results of an experiment can plausibly be said to show a dependence of the dependent variable on the independent variable, we can call that experiment *internally valid*. When the variables are operationalized in such a way that the experiment shows a relationship between the pre-theoretical concepts used by normal speakers of the language, we can call that experiment *externally valid*.

Common controls

As mentioned above, any variable that effects the dependent variable which is not controlled by the experiment is called a *confounding variable*. Simple experiments seek to control any confounding variables by blocking their effects on the dependent variable or eliminating them from experimental design altogether.

The simplest way to do this is to create two groups of participants, one of which will receive the experimental intervention and one of which will not: the experimental group and the control group. If the groups are somehow systematically different, however, that would introduce a new confound into the experiment. Thus, the first common control is *random assignment*.

Even if the groups are randomly chosen from an existing population, one must consider from what community the participants were recruited. Most psychological studies historically have been performed on college students. This population does not mirror the general population in a number of important ways: they tend to be relatively affluent, intelligent and familiar with scientific thinking. Recruiting participants in a study because they are statistical outliers on some variable introduces the problem of *regression to the mean.* People who perform extraordinarily well on a given task will tend, over time, to track back toward average. If one recruits participants for a study from the high-achieving group, it is very likely that they will see a reduction in that achievement over time. On the flip side, low-achieving people will tend to increase just because they will tend towards the average.

Evelyn Hooker's famous study of mental health of homosexuals, for example, was notable in that it recruited participants from the community, rather that from the the existing clientele of mental health practitioners. She contended that previous studies that had found a correlation between homosexuality and poor mental health had failed this rather obvious control.

Case studies, by their very nature, do not have a control group. One might argue that case studies always build off the common population for their control group, but without explicitly addressing that as the control, one is right to worry about the extent to which case studies can be extrapolated.

Simple experimental designs

Experimental design is, at its most basic, about setting up was to compare individuals who have had the experimental intervention with those that have not.

Between groups with control

The simplest experimental design randomly assigns participants into one of two groups, administrates the experimental intervention to the one of the groups, and measures the dependent variable in both

groups and compares the results. Of course, one would have to make sure that the two groups were pulled from a population representative of the college as a whole.

If we return to our example of 'studying is correlated with being educated', there are a couple of ways in which this would work: students would be assigned randomly to one of two groups. One of the groups would be instructed to study more than usual, and the other left to do what they normally did. After some period of time, their rate of education would be measured (how it is operationalized and measured is a different topic). If 'time spent studying' is positively correlated with 'being educated', we'd see an increase in the dependent variable in the experimental group.

Alternatively, one could require that the experimental group study *less* than than normal. If the correlation exists, one would see a decrease in the experimental group's rate of education—but that would still help establish the positive correlation between the two variables.

It is possible for 'time spent studying' to be negatively correlated with 'being educated.' If that were the case, the experimental intervention of 'more study' would produce a decrease in 'being educated,' and the experimental intervention of 'less study' would produce an increase in 'being educated.'

One-group pre-test / post-test

In a pre-test / post-test experiment, the variable in question is measured both before and after the experimental intervention. In this case, a single group is compared to itself. Returning to our example of 'being educated', we might test first year students during orientation on a crucial skill like 'Critical Thinking', and then again at graduation, in order to determine the extent to which the college experience developed the students' education.

Of course, there are many worries here. The first, and most obvious, of which is the *maturation effect*. People mature a great deal between the ages of 18 and 21, regardless of whether or not they are in college. Measuring critical thinking skills in a simple pre-test / post-test design would not be able to distinguish between the development that was due to simple maturation, and that which was due to being in college.

Second, college is not just about what happens in the classroom: it is about the environment of the college as a whole. The *history* of the participants that is not a part of the experimental intervention may confound the study.

Third, standard tests, while they increase reliability, can also increase the skills of the participants themselves. Taking tests of critical thinking skills can, itself, increase one's critical thinking skills. Thus, if the pre-test and post-test are given in a short space of time, the *testing* itself could confound the experiment.

Fourth, the way in which we measure may be subject to *instrument decay*. If students in high school, for example, get annoyed by standardized testing, they may express this annoyance by not making their best effort on the test—I've heard many anecdotes over the years that students are increasingly 'voicing' their opposition to the current emphasis on standardized testing by randomly filling in the answer sheet and turning it in.

Matched subjects

I'm sure that at this point, you're all pretty skeptical about the ability of my hypothetical experiments to test the correlation between studying and being educated. I'm sure of this because like most college students, you probably believe that being educated is profoundly effected by a students natural aptitude for education. “Some people,” you'll likely argue, “are just better at X than others—if one of your groups just happened to have a higher population of people who are at X than the other, and you measure 'education' in terms of 'X', there will be a problem.” We get around this problem by using a *matched random assignment* experimental design.

Suppose that I decided to measure 'being educated' in terms of verbal analogies—like the SAT test does. Some students plausibly are better at vocabulary than others. If my experimental group had a higher population of, say, people who took Latin in high school, it is likely that my groups would differ in terms of their verbal analogies score without any experimental intervention at all, or the experimental group would respond better to the experimental intervention than the control group would have.

In order to block this confound, we can match members of the two groups in terms of their verbal analogy ability. For every high-achieving member of the experimental group, there is a high-achieving member of the control group, and likewise for low-achieving groups. Thus, the average scores of the two groups, without experimental intervention, should be identical.

This design, while innovative, is open to a major problem: *mortality*. Individual participants will leave an experiment for a variety of reasons, just like students leaving college. If a participant leaves a matched-pair study, the experimenter risks losing two participants or introducing inequality in the groups. Morality is a problem for all experiments that seek to measure a variable over time, but it is particularly acute for matched-pair experiments.

Modeling and abductive reasoning[72]

When asked what he would have done if Sir Arthur Eddington's 1919 gravitational lensing experiment had disproved his theory of gravitation, rather than confirming it, Einstein is reported to have said:

> Then I would have felt sorry for the dear Lord. The theory is correct.

Einstein was so convinced of the veracity of his theory that a false result would not have meant that his theory was false, but rather that God had gotten it wrong! Humorous quips aside, Einstein's confidence was not born of experimental data (he did few, if any, actual experiments in his life) it was born of the beauty and elegance of his theories. These are abductive virtues: virtues of a theory that make it more attractive than its competitors, all explanatory power being equal.

Abductive reasoning is 'reasoning to the best explanation.' Unlike 'induction', which extends some observation of regularity to an unobserved population (i.e. most educated people are empathetic, therefore it is likely that the next educated person I meet is empathetic), abduction posits an explanation for the regularity observed (i.e. educated people have had experiences where they have been required to adopt another person's perspective, which is a form of empathy). Like induction,

72 For more on the technicalities and controversy of the logical structure of abduction, see the entry in the Stanford Encyclopedia of Philosophy: Douven, Igor, "Abduction", *The Stanford Encyclopedia of Philosophy* (Spring 2011 Edition), Edward N. Zalta (ed.), forthcoming URL = <http://plato.stanford.edu/archives/spr2011/entries/abduction/>.

abduction is uncertain, relying on probability and predictive power, neither of which will guarantee the certainty of its results.

The term 'abduction' was originally introduced by C.S. Peirce, friend of William James and professor at Hopkins during the early days of American Research universities. Peirce distinguished abduction from induction insofar as induction, yet believed that a true scientific method must make use of all three concurrently.

Modeling involves creating a mechanism—virtual or actual—that functions in the same way as the target phenomenon. If one wants to understand *how* studying relates to being educated, one would have to create a mechanism that was capable of both studying and being educated (that, I fear, is still a long ways off).

If I want to understand how erosion happens, I can build a small-scale environment in my sandbox and subject it to a deluge of water. If I want to know about how a cruise ship will fair in the open ocean, I can build a small-scale version of it and let it float in a wave pool. If I want to know about how moving bodies interact, I can build a system of mathematical formula that will interact in the same way. These are all *models* of target phenomena. The best model is the one that best fits the phenomenon—the one that acts the same way in the constrained environment as the target object does in the real environment.

Building a model, and testing its fit, usually involves three distinct investigative strategies: activating, stimulating and lesioning.

- 'Activating' simply means instigating the instigating the target phenomenon, and measuring the behaviors it engages in: assigning homework and then measuring studying time would be an example.
- 'Stimulating' means to intervene in the underlying parts: for example, we could provide specific neurologically-active chemicals, such as caffeine, to studiers and measure neural activity during the process.
- Finally, 'lesioning' means cutting some part of the mechanism out. In psychology, for obvious ethical reasons, lesioning happens only by accident. But that doesn't mean that it doesn't occur: Broca's study of 'Tam', Scoville & Milner's study of 'HM' and Tulving's study of 'KC' are all cases of lesioning.

Modeling is not a investigative strategy that is in competition with experimentation. Modeling and experimentation complete each other, as scientists experiment on models, and they build models to replicate the behaviors of the target organism that were discovered via experimentation.

Consider for a moment natural language. As Chomsky pointed out, the set of utterable grammatical sentences in a natural language is infinite. An adequate explanation for our grammatical abilities, then, requires a model of how this set of sentences are generated. Simply describing the set of possibly grammatical sentences is not enough to explain how it is that our minds recognize some as acceptable and some as unacceptable. At least, that is the Cognitivists' contention.

Abductive Virtue

The virtues of a theory that makes it attractive (or the 'best' explanation available) are often pragmatic in nature; and, as philosophers of science are fond of pointing out, often have more to sociocultural

values than the facts intrinsic to science. We have already encountered the most famous virtue of abduction:

Simplicity: Often called 'Occum's razor', after William of Occum; although no one is sure if he ever actually held any of the views he is now identified with, simplicity can be summarized thus:

All other things being equal, the simplest explanation is probably correct.

This is a classic abductive virtue. It doesn't say that simple explanations are *always* correct. It says that a simple explanation is to be preferred to a complicated explanation *when they are equal with respect to explanatory power.* If I try to explain the breaking of a glass in terms of pixies and wars, my theory can only be a contender if I can explain the breaking of all glasses, AND the rare occasions in which glasses don't break. If I can't do that, then my theory is a non-starter.

Precision. Typified by our preference for quantified theories rather than qualitative theories, a theory that can make precise predictions is preferred to a theory that makes only vague or 'fuzzy' predictions.

Clarity. My advisor used to tell me "if you can't state your theory without cracking a smirk, you don't really believe it" That is about right. In order to move a theory forward, one has to be able to explain it easily to others, and a clear theory is more easily explainable than an opaque theory.

Consistency. A basic criteria of the acceptability of a theory is its internal coherence. A virtue of a good theory is its consistency with other theories of the day.

Unity. A single theory that can explain multiple phenomena is better than an ad hoc theory that explains only one phenomenon. This is, interestingly, the driving force for choosing theories in modern theoretical physics. The opposite of 'unity' is 'ad hoc' explanations. If a suggested model explains *only* the phenomenon it is supposed to explain and suggests no further course of research, it is ad hoc. For example, if I were to explain why a particular patient was depressed in terms of that person's having a special tendency to be depressed, my explanation is *ad hoc*.

Elegance. What counts as 'elegance' in a theory varies from discipline to discipline, and even researcher to researcher. It is hard to describe exactly what makes a theory elegant, but it is something like having all of the virtues listed here in the right balance.

Appendices

Appendix 1. **Excerpt from Phillipe Pinel's *A Treatise on Insanity***

Appendix 2. Excerpt from Krafft-Ebbing *Psychopathia Sexualis*

This excerpt contains three excerpts from Charles Gilbert Chaddock's translation of Dr. R. von Krafft-Ebbing's *Psychopathia Sexualis*:

1. Pages 185-356, covering what Krafft-Ebbing calls the “Contrary sexual instinct, or homo-sexuality.” You'll notice that Krafft-Ebbing lumps a number of sexual activities we would now distinguish together.
2. Pages 408-410, on the legality of same-sex sexual relations
3. Pages 428-429, on 'Lesbian Love.'

Appendix 3. Freud, S. (1920) "The Psychogenesis of a case of Homosexuality in a Woman"

Appendix 4. Skinner, B.F. (1954) "A Critique of Psychoanalytic Concepts and Theories"

Appendix 5. Miller, George A. (1956) "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information

originally published in *The Psychological Review, 1956, vol. 63, pp. 81-97*

Available freely online (with permission of the author) at http://www.musanim.com/miller1956/

Appendix 6. Chomsky, N. (1959) "Review of Verbal Behavior by B. F. Skinner*"*

Originally published in *Linguistic Society of America* 35(1) 26-58

available on Jstor.org

Appendix 7. Diagnostic and Statistical Manual of Mental Disorders, Second Edition (DSM II)

Appendix 8. APA Ethical Standards of Psychologists (1968)

Alphabetical Index