

## Raymond B. Cattell (1905-1998)

- Born in Staffordshire, England
  - Father was a mechanical engineer
  - Received a B.S in Chemistry from University of London at age 19
  - Attained Ph.D. in Psychology from same institution
  - Wanted to help to solve the political and economic problems of the time
  - Needed to understand human nature in order to develop new solutions
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- Studied Psychology under Charles Spearman
  - Worked with Thorndike at Columbia on Intelligence theory
  - Invited by Allport to join faculty at Harvard in 1941
  - Went to University of Illinois in 1945 and stayed until 1973
  - Published 55 books and 500 articles
  - In 1997 he received the lifetime achievement award from APA

## Factor Analysis

- This is a complex mathematical technique that is used to analyze large data sets
- Used in Chemistry, Sociology, Economics, Psychology, among others...
- Used to discover relationships between variables and to *classify* them
- Based on correlations between items and how things group together.
- Simplify information and reduce redundancy

## Elements of his Trait Theory

- Constitutional traits v. Environmental Mold traits
- Ability Traits: skill in dealing with given situations
- Temperament Traits: stylistic tendencies
- Dynamic Traits: motivation and interests
- Surface v. Source Traits

# Neuroticism

- High-Scorer:
  - Worrying
  - Emotional
  - Anxious
  - Vulnerable
- Low-Scorer:
  - Calm
  - Unemotional
  - Self-controlled
  - Hardy



# Openness

- High-Scorers:
  - Creative
  - Imaginative
  - Curious
- Low-Scorers:
  - Unimaginative
  - Down-To-Earth
  - Like routine



# Agreeableness



- High-Scorer:
  - Good-natured
  - Gentle
  - Cooperative
  - Trusting
- Low-Scorer:
  - Irritable
  - Ruthless
  - Suspicious
  - uncooperative

# Extraversion

- High-Scorers:
  - Talkative
  - Passionate
  - Sociable
  - Fun-loving
- Low-Scorers:
  - Quiet
  - Passive
  - Reserved
  - cautious



# Conscientiousness



- High-Scorers:
  - Organized
  - Careful
  - Hardworking
  - Ambitious
- Low-Scorers:
  - Negligent
  - Lazy
  - Aimless
  - Careless

## Personality Sphere

- Listing of all the traits used to describe behavior in a culture.
  - **Sixteen Personality Factor Test** - factor-analytically derived questionnaire designed to measure the primary or basic underlying traits of personality.
  - **Clinical Analysis Questionnaire** - test designed to measure normal and deviant personality traits; includes the 16 PF traits and 12 other psychopathological traits.

### Econetic Model

- Model that postulates a complex interaction between traits and the physical, social, and cultural environments in the prediction of behavior.
  - **Environmental Sphere** - listing of all the terms used in a culture to designate situations.

### Dynamic Calculus

- Set of mathematical formulas (specification equations) that integrate traits, environment, and motivational factors in the prediction of behavior.
  - **Specification equations** - formulas that specify the ways in which traits are weighted in relation to given situations and then combined to predict behavior.

## Personality Development

- Role of Heredity and Environment - both biology and learning affect the development of traits.
  - **classical conditioning** - type of learning in which a stimulus that is originally incapable of evoking a response becomes capable of evoking it after continued pairing of this stimulus with one that naturally produces the response.
  - **instrumental conditioning** - type of learning in which the presentation of a rewarding or punishing stimulus is made contingent on the occurrence of a response or behavior; also known as operant conditioning.
  - **integration learning** - type of learning in which people utilize their reasoning abilities and value systems to maximize the attainment of long-range goals.

## Personality Development (cont.)

- Abnormal Development
  - **neurosis** - disorder in which person is highly anxious and emotionally unstable.
  - **psychosis** - very severe disorder in which person often loses contact with reality and may be a threat to himself or others.

### **Therapeutic Assessment Techniques**

- **L-data** - information about a person's life based on the actual observance of the person's behavior or on records of the person's behavior.
- **Q-data** - information about a person's behavior obtained through self-ratings on a questionnaire.
- **T-data** - information based on observers judgments of how a person reacts to the environment; the data are collected in situations that do not permit the person to know what aspect of his or her behavior is being evaluated.

### **Theory's Implications for Therapy**

- Relies heavily on the use of psychometric instruments in the diagnosis of the disorder and to gauge effectiveness of treatment.

## Beyondism

- New morality based on scientific research and data. Cattell believed this new set of ethics would help society progress beyond its current state of instability, confusion, and crisis.
  - **Restrictive Eugenics** - program to reduce the birth rate of the mentally handicapped; Cattell advocated this program in the belief that such individuals are a costly burden to society and slow its evolutionary growth.
  - **Creative Eugenics** - program designed to increase the birth rate of more intelligent people in the belief that such individuals will develop sounder ethical values and contributes more to society's well being.

## Evaluative Comments

- Comprehensiveness - broad in scope.
- Precision and Testability - precise and testable.
- Parsimony - high in parsimony.
- Empirical Validity - empirical support for the predictive validity of the 16 PF test is good in the area of occupational psychology, but little support for the econetic model as yet.
- Heuristic Value - theory has not proved very stimulating to mainstream researchers, but some of Cattell's pioneering ideas about the role of traits have had an impact on contemporary personality psychologists, especially those interested in the Big Five factors (See Chapter 18).
- Applied Value - considerable influence in the clinical diagnosis of psychopathology and tremendous impact on occupational psychology.