

- 1 Context for Behaviorism
- 2 Influences on Behaviorism: Positivism, Functionalism, Comparative Psychology
 - Positivism
 - Auguste Comte (French, 1798-1857)
 - Emphasis on positive knowledge, social verification, objective methods
 - Functionalism
 - Emphasis on functionality of responses
 - Willingness to work with variety of preparations
 - Comparative Psychology...
 - Russian Proto-Behaviorism.
- 3 Influences on Behaviorism: Comparative Psychology, I
 - Decreased focus on consciousness: Binet, Francis Darwin,
 - Jacques Loeb (German, 1859-1924): *tropism*
 - John Watson's work (Dissertation at Chicago, 1903, "Animal Education: The Psychical Development of the White Rat")
 - Robert Yerkes work at Harvard, 1900
 - W. S. Small (Clark Univ.) introduces mazes with rats, 1900.
- 4 Small's original (1899) maze
- 5 Influences on Behaviorism: Comparative Psychology, II
 - Oscar Pfungst's work exposing Clever Hans (1904)
 - C. H. Turner, "A preliminary note on ant behavior", 1906
 - Margaret Floy Washburn, *The Animal Mind* (1908)
 - *Journal of Animal Behavior* founded (1911).
- 6 Russian Proto-Behaviorism
 - I. Sechenov (reflex model)
 - I. P. Pavlov (classical conditioning of autonomic responses)
 - V. Bekhterev (classical conditioning of motoric responses).
- 7 Ivan M. Sechenov (1829-1905)
- 8 Ivan Milchailovich Sechenov - Biographical
 - born 1829
 - Military engineer; M.D., Univ. of Moscow, 1856
 - Studied with Helmholtz, Muller; Influenced by Darwin
 - Professor at St. Petersburg; resigned
 - Univ. of Odessa; St. Petersburg (again); Univ. of Moscow
 - Died 1905.
- 9 Sechenov – Contributions I

- Called for “radical environmentalism”:
 - “The new psychology will have as its basis, in place of the philosophizings whispered by the deceitful voice of consciousness, positive facts or points of departure that can be verified at any time by experiment.”.

10 Sechenov – Contributions II

- *Reflexes of the Brain* (1863; English trans. 1965)
- Reduced psychological events to muscle movements
- Fundamental unit: the reflex (afferent activity; central connective processes; efferent activity)
- Foreshadowed Watson (but Watson did not read his work); influenced Pavlov.

11 I. P. Pavlov (1849-1936)

12 Ivan Petrovitch Pavlov – Biographical I

- born 1849
- Attended theological school; B.S. St. Petersburg Univ. in physiology (1875); M.D. 1879
- Postgraduate studies in Germany
- Prof. of Pharmacology at Military Medical Academy, St. Petersburg (eventually Chair of Physiology Dept.).

13 Ivan Pavlov – Biographical II

- Personal characteristics: Temper; paternalism; humor; energy; absent-mindedness
- Won Nobel Prize, 1904 (for work on digestion)
- Pavlov always represented self as physiologist, but started Russian psychology
- Died 1936.

14 Pavlov - Research

- Initial work on cardiac nerves
- Digestive system (Nobel).

15 Pavlov & students in lab

16 Apparatus often used for Pavlovian (Classical) Conditioning

17 Pavlov’s Psychological Work

- Brain and behavior, 1902-1936 (*Lectures on Conditioned Reflexes*, 1928)
- “Psychic reflexes”, i.e., conditioned reflexes
- Cortical spread of excitation, inhibition
- Paradigms of classical conditioning
- Extinction, spontaneous recovery, stimulus generalization, disinhibition, discrimination
- Personality types
- Experimental neurosis, 1928-1936
 - Ultramaximal inhibition;
 - phases of reaction to stress.

18 Pavlov - Contributions to Radical Behaviorism

- Description of model for human learning
- Systematic methodology applied to learning, stressing objectivity
- Exploration of physiological basis of cognitive activity
- Analysis of symbolic behavior in terms of basic phenomena
- Contributions to neurosis
- Gave Watson a body of data to refer to.

19 Vladimir Bekhterev (1857-1927)

20 Hmm...

- Same person? You be the judge...

21 Vladimir M. Bekhterev (1857-1927)

- Medical training
 - Physiologist, neurologist
 - M.D. at Military Medical Academy, St. Petersburg 1881
- Studied with Wundt
- 1893 - Starts mental hospital at Military Medical Academy
- 1907 - Founds Psychoneurological Institute.

22 Bekhterev's Contributions to Psychology

- *Objective Psychology*, 1907
- Extended Pavlov's conditioning to motor responses.

23 Edwin Burket Twitmyer (1873-1943)

- Student of Witmer at Pennsylvania
- Described conditioned knee jerk at APA in 1904, before Pavlov or Bekhterev's work
- Nobody paid attention.

24 Edward Lee Thorndike (1874-1949)

25 Edward Lee Thorndike: Biographical

- Born New England, 1874; son of minister
- B.A. Wesleyan Univ., Connecticut (1895)
- B.A. at Harvard, in English Lit.; M.A.
- Ph.D. at Columbia under Cattell, 1899. Dissertation: "Animal intelligence: An experimental Study of the Associative Processes in Animals"

- Taught at Western Reserve Univ., then at Teachers College, Columbia
- Died 1949.

26 **Thorndike: Books**

- *Educational psychology* - 1903
- *An introduction to the theory of mental and social measurements* - 1904
- *Educational psychology* (3 volumes) - 1913-14
- *Educational psychology: Briefer Course* -1914
- *Teacher's word book* 1921 (later *Teacher's word book of 30,000 words*).

27 **Thorndike: Tests**

- Thorndike-McCall Reading Scales - 1921
- Thorndike Arithmetics - 1917
- Many miscellaneous scales published as articles.

28 **Thorndike: Conceptual Contributions**

- Psychometric Theory
- Empirical work on instrumental learning
- Puzzle box procedure; use of latency to escape measure in cats.

29 **Thorndike's Puzzle Box**

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31 **Thorndike's Law of Effect (1905):**

- "Any act which in a given situation produces satisfaction becomes associated with that situation, so that when the situation recurs the act is more likely than before to recur also. Conversely, any act which in a given situation produces discomfort becomes disassociated from that situation, so that when the situation recurs the act is less likely than before to recur".

32 **Thorndike's Law of Exercise (1905):**

- Any response made in a particular situation becomes associated with that situation; response strength is a function of use or disuse in the situation.
- Note anticipation of functional autonomy.

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34 **End of this topic**