Behaviourism and Animal Psychology

- Chung & Hyland (2012). *History and Philosophy of Psychology.* Chapter 7.

Before behaviourism

- During the 19th century animals were studied in their own right
  - George Romanes - published *Animal Intelligence* in 1881
    - 'I thought it desirable that there should be something resembling a text-book of the facts of comparative psychology. Romanes
    - 'The archetypal purveyor of anecdotes about animals (Boakes 1984)
- Animals can't introspect

Thorndike 1874-1949

- Poorly supported by biology departments
- Not supported at Harvard, so used James' basement as laboratory
- Due to lack of support, moved from animal psychology to educational psychology
- Published *Animal Intelligence* in 1911
- his 'few short years of animal work'

Thorndike's law of effect

- Of several responses made to the same situation, those that are accompanied or closely followed by satisfaction to the animal will, other things being equal, be more firmly connected with the situation, so that, when it recurs, they will be more likely to recur' those which are accompanied or closely followed by discomfort to the animal will, other things being equal, have their connections with that situation weakened, so that, when it recurs, they will be less likely to recur.

Thorndike's law of exercise

- Any response to a situation will, other things being equal, be more strongly connected with the situation in proportion to the number of times it has been connected with that situation and to the average vigor and duration of the connections.

Pavlov 1849-1936

- Experiments on sham feeding - release of gastric juices in the stomach even though no food present
- Called these ‘psychical secretions’

Pavlov and the conditioned reflex

- An UCS (unconditioned stimulus) gives an unconditioned response (UCR)
- CS (conditioned stimulus) paired with UCS (unconditioned stimulus)
- After a while the CS gives a CR (conditioned response)

Phenomena worked on by Pavlov

- Extinction
  - present CS without UCS
- Spontaneous recovery
  - after a rest following extinction, the is a spontaneous recovery of the CR
- higher order conditioning
  - associating the CS with some other stimulus
- experimental neurosis
  - dogs become disturbed if discrimination tasks become too difficult

J. B. Watson 1878-1958

- Didn’t enjoy introspection tasks
- Developed his manifesto for Behaviourism in Psychological Review 1913.
    - Psychology as the behaviourist views it is a purely objective experimental 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.

Watson's life

- "I never wanted to use human subjects. I hated to serve as a subject…I was always uncomfortable and acted unnaturally. With animals I was at home". 1936.
- Divorced in 1920, and married his assistant, Raynor – and dismissed from the university.

Methodological behaviourism

- Believed that psychology had failed *as a science*
- introspection worthless
- behaviour can be studied in animals
- study humans like animals using only objective observation

Main ideas of Watson's behaviourism

- Stimulis response bond

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- some innate and some learned

- Associationist - but never developed an entirely satisfactory theory of learning

The case of little Albert

- Wanted to show that phobias were learned - in contrast to Freud
- The story of little Albert
  - Albert - aged 11 months was afraid only of loud noises
  - white rat placed in front of Albert - when Albert reaches out loud noise
  - After 7 noise-rat presentations Albert cried at seeing rat.
  - Later reports say fear generalised to rabbit, dog, fur coat - but not cotton wool (!!)
  - Still cried 5 days later (but response needed to be ‘freshened up’!)

B.F. Skinner 1904-1990

- Radical behaviourism

- rejected ‘theoretical terms because they are superfluous

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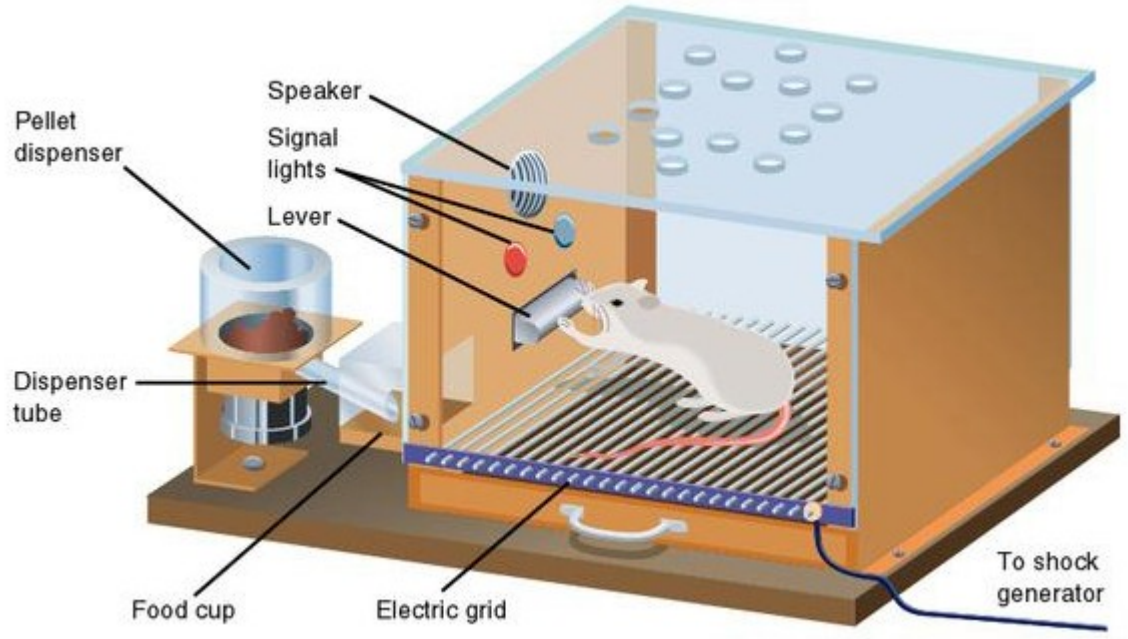
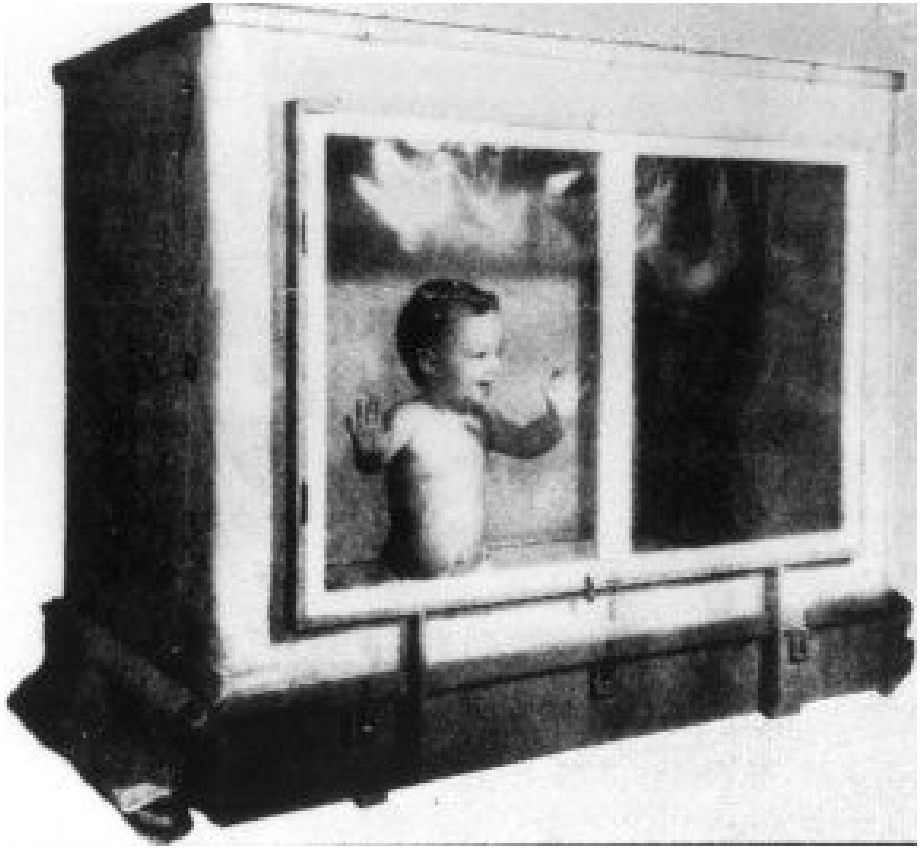
Skinner's achievements

- *The behaviour of organisms*
- Classical versus operant conditioning
- Influenced behavioural techniques of therapy

The Skinner box



The air-crib – baby in a box



Skinner's achievements

- *Walden Two* (1948), *Beyond Freedom and Dignity* (1971) - Skinner's writings on Utopia based on operant conditioning
    - freedom and dignity are subjective impressions that have no basis in objective reality

Neobehaviourism

- Unobservables are OK as long as they are objectively defined

- eg., Hull, Tolman Guthrie

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Reasons why the neobehaviourists wanted to include theoretical terms

- Rats behave differently depending on past experiences
- e.g., depending on whether they have eaten or prior experience

Clark Hull (1884-1952)

- Sympathetic to Watson's rejection of introspection but felt that something needed to be put in its place.

Hull's theory

- *Principles of behaviour* 1943
- ${}_{S}E_{R} = D \times H$

- ${}_{S}E_{R}$ = net reaction potential
- D = Drive = number of hours without food
- H = Habit = number of left/right turns in maze

Intervening variables versus hypothetical constructs

- Intervening variable
  - Intelligence is what intelligence tests measure
  - Concept is defined by its measurement procedure

- Hypothetical construct
  - Intelligence tests measure intelligence
  - Concept exists independently of its measurement

Contributions of Tolman

- Demonstrated latent learning - showed that Thorndike's law of effect was not needed for learning
  - if a rat walks round a maze when not hungry, the rat learns he layout of the mze
  - Rats have a 'cognitive map' of the maze
    - note first use of the term cognitive map

Contributions of Tolman

- Thought that behaviour was goal oriented
- Rats used cognitive map to reach their goals.

- Tolman uses hypothetical constructs rather than intervening variables