

Chapter 2. History and Science

The second introductory chapter defines the different means by which psychology's history might be understood. Special emphasis is placed on the following alternative perspectives: genius versus zeitgeist as causal agents; internal versus external influences; presentist versus historicist narratives; idiographic versus nomothetic analyses; quality versus quantity in phenomena; deterministic versus stochastic descriptions. The chapter concludes with a discussion of how the psychology of science, and especially the psychology of psychological science, can provide scientific insights into the figures who have contributed most to psychology's development.

UNDERSTANDING HISTORY – 5 core issues:

Genius versus Zeitgeist as Causal Agents

Carlyle and Galton versus Tolstoy and Boring

e.g. eponyms

1. *Schools* – Aristotelian, Cartesian, Comptian, Hegelian, Kantian, Machian, Marxist, Platonist, Thomist, Watsonian;
2. *Therapeutics* – Adlerian, Bernheim's, Freudian, Jungian, Pinel's system, Rankian, Reichian, Rogerian;
3. *Theories* – Cannon-Bard, Darwinian, Hebb's, Heider's, Hering's, James-Lange, Ladd-Franklin, Lamarckian, Malthusian, Thurstone's, Young-Helmholtz;
4. *Laws* – Bell-Magendie, Donder's, Emmert's, Fechner's, Galton's, Heinis, Mendel's, Müller-Schumann, Ribot's, Steven's, Weber, Yerkes-Dodson, Zipf's;
5. *Syndromes* – Brown-Séguard, Down's, Klinefelter's, Korsakoff's, Selye's, Tourette; *Diseases* – Alzheimer's, Charcot's, Daltonism, Janet's, Parkinson's;
6. *Symptoms* – Broca's aphasia, Charcot's triad, Wernicke's agnosia;
7. *Neuroanatomy* – Bekhterev nucleus, Bell's circle of nerves, Golgi apparatus, Purkinje cell;
8. *Phenomena* – Aubert, Féré, Köhler-Restorff; *Effects* – Brewster, Broadbent, Brücke, Garcia, Gibson, Greenspoon, Rosenthal, Stroop, Zeigarnik;
9. *Illusions* – Aristotle's, Ebbinghaus, Hering, Jastrow, Müller-Lyer, Ponzo, Wundt; *Figures* – Ebbinghaus, Lissajou's, Purkinje, Rubin's; *Reflexes* – Babinski, Darwinian, Moro;
10. *Triangles* – Hellwag's, Helmholtz, Koenig, Maxwell's, Pascal's;
11. *Scales* – Bayley, Guttman, Likert, Oseretsky, Thorndike's, Thurstone, Wechsler-Bellevue;
12. *Experiments* – Cannon-Washburn, Fechner's, Franklin, Stratton's;
13. *Tests* – Bárány, Bender, Goodenough, Fourier's, Henmon-Nelson, Jung, McNemar, Otis, Rorschach, Stanford-Binet, Torrance, Turing, Vygotsky;
14. *Measurement units* – angstrom, Celsius, decibel, Fahrenheit, hertz, Kelvin, ohm, volt; *Curves* – Ebbinghaus, Gaussian, Gompertz, Laplacean, Vincent;
15. *Techniques* – Aubert diaphragm, Dunlap chronoscope, Erdmann-Dodge tachistoscope, Galton's whistle, galvanometer, Gesell observation dome, Jastrow cylinders, Koenig cylinders, Lashley's jumping stand, Luria technique, Seashore's audiometer, Skinner box, Thorndike's puzzle box, Wundt gravity phonometer, Yerkes-Watson discrimination apparatus;
16. *Statistics* – Bayes' theorem, Bernoulli trials, Cronbach's alpha, Fisher distribution, Pearsonian correlation, Poisson distribution, Spearman's r ;
17. *Mathematics* – Boolean algebra, Fourier's law, Markov process, Shannon-Wiener information measure;
18. *Paradoxes* – Fechner's, Leonardo's, Lord's, Zeno's;
19. *Miscellaneous* – Ames demonstration, Asch situation, Bekhterev's nystagmus, Berger rhythm, Brunswik ratio, Buridan's ass, Freudian slip, Galenic temperaments, Hering's afterimage, Ishihara plates, Jungian typology, Kraepelin's classification, Lloyd Morgan's canon, mesmerism, Montessori method, Newton's color circle, Occam's razor, Pavlovian conditioning, Purkinje afterimage, statue of Condillac, Titchener's circles.

Boring's influence on history of psychology

Internal versus External Influences

Thomas Kuhn's (1972) structure of scientific revolutions
Marxist historical determinism

Presentist versus Historicist Narratives

"Whig history" versus professional history
alternative: transhistorical (historiometric)

Idiographic versus Nomothetic Analyses

"names, dates, and places" versus laws, principles, correlations
psychobiography (Freud, Erikson) versus historiometry (Galton, Cox)
latter can incorporate both individual and situation,
and in the latter case both internal and external factors

Quality versus Quantity in Phenomena

historical narrative and insight versus
scientific quantification and mathematical analysis
cliometrics, psychometrics, historiometrics

SCIENTIFIC ANALYSES

The Psychology of Science

Past contributors: Francis Galton (1874), William James (1880), Hermann Helmholtz (1891/1898), Ernst Mach (1896), James McKeen Cattell (1903a), S. S. Stevens (1939), Walter Cannon (1940), Max Wertheimer (1945/1982), Louis Terman (1954), Paul Meehl (1954), B. F. Skinner (1959), David McClelland (1962), R. B. Cattell (1963), Abraham Maslow (1966), Jean Piaget (1970), and Herbert Simon (1977).

Main topics:

1. Cognitive psychologists concentrate on the mental processes and strategies that underlie the origination and acceptance of scientific discoveries (Tweney, 1999; Tweney, Doherty, & Mynatt, 1981).
2. Differential and personality psychologists examine how individual differences in scientific performance or achievement correlate with cross-sectional variation in intellect, motivation, disposition, interests, or values (e.g., R. B. Cattell & Drevdahl, 1955; Chambers, 1964).
3. Developmental psychologists focus on the experiences and conditions that affect scientific development and performance across the life span (e.g., Dennis, 1954b; Simonton, 1991a).
4. Social psychologists, finally, study how interpersonal influences and group processes impact on scientific performance or achievement (Shadish & Fuller, 1994).

The Psychology of Psychological Science

Studies of everyday cases: majors, grad students, practitioners, etc.

Studies of notable contributors to field:

1. Psychometric studies apply regular assessment techniques, such as surveys and personality inventories, to contemporary psychologists who have some claim to enduring fame. E.g., Roe (1953b) in which 14 eminent psychologists were administered the Thematic Apperception and Rorschach tests along with measures of verbal, mathematical, and spatial intelligence (sample members nominated by such experts as E. G. Boring, E. R. Hilgard, D. B. Lindsley, and L. M. Terman).
2. Historiometric studies exploit archival data in order to examine psychologists who have convincingly attained the status of historical figures in our discipline (for original definition, see Woods, 1909, 1911). E.g., Simonton (1992b) used content analysis, citation measures, and biographical data to examine 69 psychologists who were prominent in American psychology from 1879 to 1967 (according to Annin, E. G. Boring, & R. I. Watson, 1968).

These two methods emphasized in this course.