

INDEX

- Achinstein, P.: 68, 90n1
 actuality: xiii, 55, 56, 57, 61n22, 145, 230
 Agassi, J.: 109, 110, 111, 112
 ARCHED hypotheses: see hypotheses
 Aristotle: x, 12, 55, 82, 111
 Armstrong, D.M.: xi, xii, 14, 15, 33, 34, 35, 37, 39, 41, 46, 56, 61n12, 83, 84, 150, 158, 163, 164, 181, 182
 artifacts: 123, 124, 125, 133, 139, 140
 Ashtekar, A.: 220
 asymmetric ageing of twins: xvii, 215, 221
 Ayer, A.J.: 145
- Bacon, F.: xiii, xiv, 111, 115
 Barker, S.: 68, 90n1
 belief(s): xiii, xiv, 63-91 *passim*, 93, 94, 96, 100, 103, 110, 111, 114, 115, 118, 125, 136, 148, 188, 195, 196, 199, 207
 Benacerraf, P.: 187
 Berkeley, Bishop: 197
 'Big Bang': 52, 59
 'bleen': xiii, 66
 'bootstrapping': 104-105
- causal powers: xii, 15, 17, 20, 21, 24, 26, 29, 32, 33, 34, 37, 38, 39, 44, 227
 causation: xvii, 2, 3, 6, 7, 8, 146, 187, 188
 social: 239
 Chomsky, N.: 67
 Christianity: 105
 Churchland, P.: ix
 Cohen, L.J.: xi
 colligation of facts: xiv, 111
 connectivity, principle of: 35
 conservative extensions: 188, 190-91, 195, 198
 constant conjunction: 180, 181
 correlations: 1, 2, 38, 157
 counterfactuals: xi, 1, 2, 145, 158, 159, 203
 Craig's theorem: 88
- Descartes, R.: 82, 103, 106, 113, 114
- determinacy: 5, 57, 58
 determinism: 8, 166, 177
 discovery, maxim of: 14, 15
 Distinctness thesis (Hume's): xii, 29-45
 passim, 46n3, 46n4, 227
 Duhem, P.: 4, 117, 118
 dynamics
 Schrödinger: 166, 173, 181
 von Neumann: 172, 173, 175, 176
 'Dutch book': 93, 94, 110
- Earman, J.: 188, 196, 197
 Einstein, A.: 55, 108, 110, 211
 eliminativism, presuppositional: xviii, 188, 196, 200, 202, 203
 Elk theories: see theories
 Ellis, B.: 24, 184n2
 epistemology: 73, 74, 103, 104, 106, 107, 109
 naturalised: 107
 equivalence, principle of: 222
 essence(s): x, 16, 20, 21
 essentialism: x
 explanation
 best, inference to: 83, 84
 covering-law account of: 85
 instance view of: 163, 183n1, 229
- facts
 Elk: 235-38 see also Elk theories
 novel: 110
 Fallibilism: 115, 117
 Falsificationism: 106
 Feyerabend, P.K.: xiv, xv, xvi, 6, 108, 109, 116, 123, 135, 138, 142n1, 235, 238-39
 Field, H.: 187, 188, 193, 198-203, 206, 207
 Forms (Platonic): 23
 Forrest, P.: 164, 175
 Frank, N.H.: 204
 Franklin, A.: 125, 126, 143n36
- Galileo, G.: xiv, xv, xvi, 108, 123-25, 129-42, 235-38

- gambler's fallacy: 147
 geometry: xviii, 106, 114, 187, 188, 193, 195, 196, 198, 203, 207, 208, 211
 Glashow, S.: 221
 God: 59, 94, 159
 Goodman, N.: xiii, 6, 63, 65-68, 73, 79, 93, 98, 99
 Goodman's riddle: xiii, 6, 63, 64-68, 83, 99
 gravitational waves: 212-13
 gravitons: 202, 213, 216, 218, 220
 gravity
 quantum: xviii, 211-24
 semi-classical: 222
 'grue': xiii, 65-66, 90n1, 93, 97-98, 99
 guess(es): 70-72
- Haack, S.: 74, 90n3
 Hacking, I.: 125
 Hagel, G.: 111
 Harper, W.: ix
 Hempel, C.G.: 85
 history
 of chemistry: 25
 of science: xiv, xv, 105, 107, 108, 109, 110, 111, 239
 Hume, D.: xiii, 2, 29, 109, 146, 147, 148, 151
 hypertime: 55-56
 hypotheses
 ARCHED: xv, 126, 136, 137, 138, 142n8, 143n29, 238
 projectible: 64, 68
 hypothetico-
 deduction: xv
 induction: xv
- ignorance: xiv, 93, 94
 indifference, principle of: xiv, 93-101
 indifference, thesis of: 103, 104
 induction: xiii, 63-90 *passim*
 Baconian: xiii, 105
 consilience of: xv, 28n21, 111
 inference by: 30, 68, 69, 146, 150, 151
 justification of: 69, 70
 new problem of: see Goodman's riddle
 principle of: xiii, 90n5, 93, 97, 98, 99
 problem of: ix, xiii, 109
 rationality of: 69, 70, 83, 86
 instance view of explanation: see explanation
 instrumentalism: xvii, xviii, 187, 188, 208
 Isham, C.J.: 223
- Jesuits: 114-15, 131
 Jupiter (planet): xv, 123, 124, 126, 130-33, 136-41, 236-37
- Kant, I.: 105, 106, 111, 197, 198
 Kepler, J.: 126, 130-31, 135
 Kim, J.: 18-20
 kinds
 artificial: x
 as sets: x
 fundamental: 52, 53
 instantiated: 52, 53, 59
 natural: see natural kinds.
 uninstantiated: 52, 53, 59
 knowledge: 11, 20, 25, 70, 80, 88, 94, 106, 109, 112, 114, 170, 187, 198
 sociology of: 238, 239 see also sociology
 Kuhn, T.S.: 6, 109, 114, 115, 117, 238
- Lakatos, I.: xv, 103, 107, 109-10, 112, 115, 116, 119
 Laudan, L.: 63, 86
 Lavoisier, A.: 25, 108
 laws: *passim*
 as relations: 156
 bridge: 42, 43, 190, 192, 196, 201, 203, 206
 causal: xii, 3, 8, 27
 contingency of: 2, 7, 8, 9, 30, 31, 37, 38, 40, 43, 47n28
 deterministic: 166
 empirical: 9, 164, 165
 fundamental: 5
 modal status of: xii, 27, 159
 necessity of: 3, 7, 39
 of conservation: 19, 167
 of exclusion: 53
 of logic: 190
 of nature: xi, 8, 12, 27, 30, 31, 37, 145-46, 148-51, 156, 163-65, 173, 174, 181, 182, 191, 211, 229
 of physics: 198, 205
 probabilistic: 156
 regularity theory of: xi, 148-51
 scientific: 1, 7, 8
- Lee, T.D.: 223
 Lewis, D.K.: xii, 7, 9, 33-37, 39-41, 46, 47, 51, 56, 58, 158, 159, 227
 Logic: 106, 107, 111, 118, 119, 235
 inductive: 106
 modal: 52

- of natural kinds: see natural kinds
- Logical Positivism/Empiricism: 106, 108, 109
- Lucretius: 84
- Macnamara, J: ix, 28n22
- magic
 - epistemological: xiv, 93, 94
 - metaphysical: 39
- mechanics
 - classical: 49, 164, 165, 177, 231
 - Newtonian: 7, 215
 - quantum: see quantum mechanics
- metamethodology: xv, 103, 104, 109, 110, 112
- method: 40, 103, 105, 106, 109, 111, 117, 119, 133
 - empirical: 68-70, 89, 90n5
 - inductive: 84
 - scientific: xiv, xv, 84
- methodology: xiv, xv, 9, 106, 111, 118, 119
 - Bayesian: 110, 111
 - inductive: see induction
 - Lakatosian: 109, 112
 - Popperian: 111, 112
 - Whewellian: xv, 111
- Millikan, R.: 126
- multiple manifestation, principle of: 35
- natural kinds: 1-28 *passim*
 - essential properties of: see properties
 - logic of: 11, 23-24
 - ontology of: xii, 12, 21-23
 - relations between: 4, 5, 8, 9
- natural properties: see properties
- necessity
 - causal: xi, 4
 - contingent: xi, 163, 181
 - logical: xi, 1, 24, 206
 - metaphysical: xi, 1, 2, 7, 8, 9, 24, 49, 51, 53, 54, 58, 59, 60
 - natural: xi, 229
 - nomical/nomological: 1, 4, 8, 29
 - physical: xi, xii, 49, 50, 51-54, 55, 58
 - 'world-bound': 39
- Nerlich G.: 188, 197, 212
- nominalism: 187, 190
 - psychological, thesis of: 67-68, 80
- non-linearity, problem of: xiv, 93, 97, 98
- non-proliferation, principle of: 14, 16
- ontology: xii, xviii, 11, 12, 21, 22, 23, 24, 29, 33, 34, 36, 37, 40, 41, 44, 45, 57, 60, 156, 190, 191, 193, 196, 201, 205-207, 212, 227, 231
- paradigms: xv, 103, 116
- perception(s): xiii, 74, 75, 78, 80, 81, 82-83, 88, 90
- physicality: 31, 35, 40, 46n6, 46n7
- physics: 35, 37, 40, 43, 64, 151, 207
 - Aristotelean: 133
 - classical: xvii, 151, 152, 154, 155-57, 163, 183
 - Newtonian: see mechanics
 - quantum: see quantum mechanics
- Planck length: 221, 223
- Plato: 104
- Platonism: 187
- Poincaré, H.: 7
- Popper, K.R.: 106, 107, 108, 109, 110, 114, 118, 175
- Positivism: see Logical Positivism
- prediction(s): 64, 65, 66, 69, 70, 71, 197
- probability: xvi, 21, 50, 117, 142n8, 147, 148, 150, 154, 157, 158, 170, 174, 175, 177, 178, 180, 185n17, 187, 230
- progress: 106, 113, 114, 116, 117, 119
- propensity: 15, 17, 20, 21, 26, 34, 50, 51, 175, 176, 181, 183
- properties: 149-51, 157, 187
 - classical: 154, 156, 157, 160
 - conditional: 156
 - dispositional: 21, 87
 - essential: 1, 11, 16, 17, 20-21, 22, 23, 26
 - instantiated: 3
 - intrinsic: 18
 - natural: xii, 16, 17, 36, 37, 38, 40, 47n26, 47n28
 - relations between: 156
- psychological nominalism, thesis of: see nominalism
- quantization: 216, 218, 222
- quantum field theory: 211, 212
- quantum mechanics: xvi, 106, 151-60, 163-85, 221
 - Copenhagen interpretation: xvi, 174
 - hidden variables in: 158, 159, 174
 - eigenstates of: xvi, 153-57, 170

- measurement in: xvii, 153, 155, 170, 173-75, 179, 181, 229, 231
 Modal interpretation: xvii, 164, 173, 176-80, 229-33
 non-collapse versions: 176, 177, 222, 232
 paradoxes in: xvi-xvii, 153 see also Schrödinger's Cat
 states in: see states
 value-definiteness in: 154, 171-72, 178, 183
 Quine, W.V.O.: x, 99, 103
- rationality
 of induction: see induction
 of science: 106
 of theory selection: 63
 Rawls, J.: 99, 103
 realism: ix, xvii, 53, 60, 84, 88, 156, 168, 187, 207, 208, 212
 modal: xii
 scientific: ix, 84
 redshift of light: 213-14, 216-17, 221
 regularity theory: see laws
 Reichenbach, H.: 27n16, 69
 relationalism: 199, 200, 203
 relativity: 202
 general theory of: xvi, 211, 214, 221,
 special theory of: 106, 151
 research programme: 109
 Resnick, M.D.: 94
- Salmon, W.C.: 68, 69, 93, 97, 99
 Schlesinger, G.: 93, 99-101
 Schrödinger's Cat: xvi, 155
 Schrödinger's Equation: 152, 155, 157, 220, 229
- science
 aim(s) of: ix, 21
 cognitive: 75
 demarcation of: 106
 history of: see history
 normal: 112
 success of: 106
 worship of: 112
 Scientism: xv, 103-104, 106, 107, 108, 112, 114, 115, 118
 Sellars, W.: 67, 68, 74, 90n3
 Smart, J.J.C.: 108
 sociology: 112, 115
 of science: 107, 119
 spaces
 Euclidean: 49
 Hilbert: xvi, 170, 172, 213, 222
 non-Euclidean: xvi
 phase: 165, 166, 167, 168, 229, 231
 spacetime: 19, 54, 211-24 *passim*
 classical: 220
 curved: xviii, 218
 discrete: 223
 'flat': 213, 215, 216, 218
 Spinoza, B.: 113
 states see also quantum mechanics
 classical: xvii
 dynamical: xvii, 172, 177, 179, 180, 182, 229-32
 mixed: 157, 160, 178-81, 183, 230, 232
 non-reductive account of: 169, 173, 182
 pure: 157, 160, 178, 179, 230
 relations between: xviii, 156, 169
 superposition of: xvi, 155, 156, 157, 171
 value: xvii, 154, 172, 177, 179, 180, 181, 183, 230-32
 Strawson, P.: 83
 string theory: 220
 strong coherence, maxim of: 109, 112
 substantialism: 199-203
 supervenience: 7, 8, 42, 43, 44, 45, 47n27
- theories
 Elk: xv-xvi, 127-29, 138-40
 non-renormalizable: 218
 scientific: ix, 239
 theory-ladenness of observation: 6, 195
 time: 55
 intervals: xviii, 215
 'passage' of: xii, 49, 54-56, 58, 152
 problem of: 220
 time dilation: 213-15, 217, 218
 Treder, H.-J.: 218
 truth(s): xv, 7, 20, 55, 57, 59, 69, 84, 88, 103, 106, 115, 118, 158, 159, 187, 190, 191, 195, 196, 198, 205, 227
- uncertainty principle: 212, 216, 222
 underdetermination: 63, 239
 universals: ix, xi, xii, xvii, 3, 7, 11, 12, 17, 21, 22-23, 33, 34, 35, 37, 48n34, 49, 51, 52, 59, 146, 150, 163, 181, 182
- value definiteness: see quantum mechanics
 value judgements: 107, 108, 163

- van Fraassen, B.C.: xvii, 51, 60n8, 84, 88,
159, 163, 164, 172, 173, 177, 178,
179, 229-33
- Venn, J.: x
- Venus (planet): 238
- von Borzeszkowski, H.-H.: 218
- von Hayek, F.A.: xv, 103
- Whewell, W.: xiv-xv, 104-105, 112, 114,
118
- Wilkerson, T.E.: x
- Wittgenstein, L.: 99
- world(s)
- actual: xii, 54-55, 56-59, 60
 - possible: xi, 7, 8, 24, 29, 50, 54, 60,
189, 204

AUSTRALIAN STUDIES
IN HISTORY AND PHILOSOPHY OF SCIENCE

1. R. McLaughlin (ed.): *What? Where? When? Why?* Essays on Induction, Space and Time, Explanation. Inspired by the Work of Wesley C. Salmon. 1982
ISBN 90-277-1337-5
2. D. Oldroyd and I. Langham (eds.): *The Wider Domain of Evolutionary Thought*. 1983
ISBN 90-277-1477-0
3. R.W. Home (ed.): *Science under Scrutiny*. The Place of History and Philosophy of Science. 1983
ISBN 90-277-1602-1
4. J.A. Schuster and R.R. Yeo (eds.): *The Politics and Rhetoric of Scientific Method*. Historical Studies. 1986
ISBN 90-277-2152-1
5. J. Forge (ed.): *Measurement, Realism and Objectivity*. Essays on Measurement in the Social and Physical Science. 1987
ISBN 90-277-2542-X
6. R. Nola (ed.): *Relativism and Realism in Science*. 1988
ISBN 90-277-2647-7
7. P. Slezak and W.R. Albury (eds.): *Computers, Brains and Minds*. Essays in Cognitive Science. 1989
ISBN 90-277-2759-7
8. H.E. Le Grand (ed.): *Experimental Inquiries*. Historical, Philosophical and Social Studies of Experimentation in Science. 1990
ISBN 0-7923-0790-9
9. R.W. Home and S.G. Kohlstedt (eds.): *International Science and National Scientific Identity*. Australia between Britain and America. 1991
ISBN 0-7923-0938-3
10. S. Gaukroger (ed.): *The Uses of Antiquity*. The Scientific Revolution and the Classical Tradition. 1991
ISBN 0-7923-1130-2
11. P. Griffiths (ed.): *Trees of Life*. Essays in Philosophy of Biology. 1992
ISBN 0-7923-1709-2
12. P.J. Riggs (ed.): *Natural Kinds, Laws of Nature and Scientific Methodology*. 1996
ISBN 0-7923-4225-9