

INDEX

- Abstraction, 43, 61
- Abstract systems, 262-282
- Acetylcholinesterase, 144, 189, 193
- ACTH, 127
- Actin, 239
- Adaptation, 33-66
- Adrenal hormones, 127
- Aging, 87, 133, 216-233
 - changes in memory storage processes, 133
 - developmental, 87
 - old, 233
- Amnesia, 117-131
 - ECS produced, 131
 - retrograde, 117, 120
- Amphetamine, 122, 128
- Amygdala, 125
- Analysis, 16, 287, 304-309
 - cluster, 304
 - discriminant, 305
 - extensional, 16
 - factor, 305
 - intensional, 16
 - multiple discriminant, 304-305
 - quantitative, 287
- Anatomy, 216, 224
- Apperception, 53-57
- Associative learning predisposition, 42-63
- Attention, 46, 52, 273-296
- Autoradiographic examination, 232
- Axoplasmic movement, 232
- Bait-shyness, 50
- Behavior, 30, 36, 60, 74, 87-88, 117, 164, 172, 175, 224, 237, 264, 269
 - Also see* Learning, Memory, and Retention
 - biological constraints, 74
 - brain-behavior associations, 164, 172
 - constraint of sensitization, 36
 - developmental theories, 87
 - evolution, 175
 - initiation, 30
 - maturational bases, 88
 - pathways between primary gene action and behavior, 175
 - performance, 60, 117, 237, 269
 - variability, 175
 - verbal, 264
- Behaviorism, 72, 262, 267
- Behaviorists, 263, 264
- Berkeley Group, 1, 245-246, 249-250, 254, 258
- Bioecological systems, 42-45, 61
- Biogenic amines, 186
- Body weight, 153, 188
- Bouton diameter, 235
- Brain activity, 286
- Brain damage, 75-80
- Brain, enriched, 232
- Brain events, 303-308
- Brain function, 3

- Brain, impoverished, 232
- Brain lesions, 72
- Brain mechanisms, 80
- Brain seizures, 128
- Brain size, 239
- Brain structure, 224, 230
- Brain volume, 171
- Brain weight, 145-237

- Caffeine, 122
- Castration, 225
- Catecholamines, 127-132
- Caudate nucleus, 126
- Cell, 153, 171, 216, 219, 232, 237
 - counts, 232
 - nerve, 237
 - nucleus, 237
 - number, 153, 171, 216, 219
 - size, 153, 216
 - thickness, 216
- Central nervous system, 122, 170, 175
- Cerebral hemisphere, 219
- Chromosomal inversion, 173
- Chronometric, 286-287, 302, 308-309
 - method, 287, 302
 - studies, 286, 308
- Coding scheme, 287
- Cognition, 121, 135, 246-282, 287, 303, 308
 - consolidation, 121, 135
 - control, 254
 - differences, 257
 - feedback, 254-255
 - maps, 247-258
 - organization, 246-282
 - psychology, 287
 - reorganization, 265, 268, 274
 - tasks, 253
 - theory, 246, 248
- Competence, 266-277
- Computer, 252
 - generated display, 252
 - graphics terminal, 250
 - technology, 250
- Conceptualization, 61-64
- Conditioning, 32, 35-36, 73, 79
 - classical, 32, 35, 79
 - differential, 36
 - instrumental, 32
 - operant, 73
- Conflict resolution, 257-258

- Conscious processes, 278
- Constraint, 42-43, 74
 - biological, 74
 - within associative capacity, 42
 - within plasticity, 43
- Consummatory events, 51
- Contiguity, 54, 79
- Corpus callosum, 232
- Correlation, 153, 287, 297
 - character, 153
 - mean and variance, 297
- Cortex, 3, 78, 126, 189, 219-237
 - conductivity, 3
 - depth; 220-237
 - enriched, 230
 - frontal, 229
 - lesions, 78
 - neonate, 220
 - occipital, 220-237
 - somatosensory, 220
 - somesthetic, 229, 236-237
 - temporal, 233
 - thickness, 189
- Contemporality, 288
- Creativity, 261-275
- Criterion groups, 304-307
- Critical information states (CIS), 294
- Critical period, 205
- Cue, 79, 81, 250
 - consequence, 79, 81

- Darwinian model, 72
- Dendrites, 233-237
- Designs, 13-14, 249, 253
 - experimental, 249, 253
 - systematic, 13-14
- Determinism, 15, 19
- Development, 216, 219
- Developmental research, 86, 97
- Diencephalon, 216, 219
- Diethylthiocarbamate (DDC), 128-130
- Discriminant function, 303
- Discrimination, 56, 158-160, 163
 - brightness, 158-160, 163
- Distal objects, 270
- Distribution, 291, 300
 - differences, 291
 - intervals, 300
- DNA, 153
- L-Dopa, 132
- Dopamine- β -hydroxylase, 128

- Dualism, 266
 Duration, 222, 224, 236
 anatomical effects, 236
 exposure, 224

 Ecology, 44
 Electroconvulsive shock (ECS), 120, 124, 131
 Electroconvulsive therapy (ECT), 120
 Electrolytes, 230
 Electrophysiology, 307
 Empiricism, 267
 Encode experience, 232
 Endothelial cells, 231
 Environment, 162-163, 180-182, 198-199, 220-237
 enriched, 162, 180-182, 198-199, 220-237
 genotype interactions, 163
 impoverished, 220-236
 Epileptic seizures, 227
 Epinephrine, 127
 Epiphenomenon, 267
 Equipotentiality, 77-78
 Ethological traits, 175
 Evoked responses, 302-308
 Evolution, 11-39, 43-80, 175

 Fascia dentata, 231
 Fixed action patterns, 56
 Fixed responses, 60, 62
 Flavor-delayed illness, 79-82
 Flow diagrams, 289
 Food preferences, 50, 80
 Forebrain, 216
 Free will, 272
 Frequency, 290, 304
 distribution, 304
 histograms, 290
 Function, 250-255, 289
 forms, 250-254
 relations, 255
 patterns, 289
 Functionalism, 12, 22-23
 Fusaric acid, 128

 Generality of response speed, 287
 Generalization, 248
 Genetics, 30, 145-148, 152-157, 163-166, 171-175
 Also see Heredity and Selection
 Genetics (*cont'd*)
 behavior, 145
 correlation, 155
 determination, 148, 154-155
 dissection, 175
 dominance, 173
 drift, 152, 157, 163, 171
 heterogeneous population, 157, 165-166, 171-172
 linkage, 173
 linkage disequilibrium, 172
 major genes, 172
 morphological traits, 164
 weights and volumes, 171
 parent-offspring correlations, 164
 polymorphisms, 173
 predispositions, 30
 progeny, backcross, 172
 ratio traits, 164
 recombinant inbred lines, 173
 variability, 164, 170-171
 variation, 146
 Gestalt, 4, 264-266, 281
 Glial cells, 216, 219, 231-232
 Gonadal hormones, 225, 227, 230
 Grammar, 262-281

 Habituation, 32-35, 48
 Handling effects, 181
 Hebb-Williams apparatus, 222
 Hedonic shifts, 81
 Hemispheric dominance, 216
 Heredity, 30, 75, 144
 Hick's law, 287
 Hippocampus, 125-126, 154-170, 216, 219, 230-235
 depth, 216, 230-231
 gyri, 231
 ratio, 169-170
 History and philosophy of science, 5, 19
 Holism, 286
 Homogeneous process, 293-294
 Hormonal mediation, 187
 Hullians, 2
 Human information processing, 247, 250, 286-295
 judgment, 247, 250
 thought, 286-287
 Hypothesis, 3, 73-75, 120, 267-269, 288, 302
 central intermittency, 288

- Hypothesis (*cont'd*)
 preservation-consolidation, 120
 single-channel, 288
- Implementation, 246, 248, 257
- Imprinting, 87-94, 282
 critical periods, 87, 92
 differences, 94
 innate releasing mechanism, 91
 reliability, 90
 testing of young chicks, 90
 theories, 92-93
- Incentives, 77
- Independent events, 295
- Individualism, 285-286, 289
- Inductive inference, 248
- Information processing, 297-298
- Inhibition, reciprocal, 295-296
- Innate capacity, 262-282
- Insight, 61, 74, 274
- Instinct, 66
- Intelligence, 76
- Internalized associations, 32
- Interpersonal conflict, 257
- Intersect event, 63-65
- Intuition, 273-282
- Ionic movement, 232
- Isolation, 225
- Judgment, 250, 254, 256
 accuracy, 254
 policy, 254, 256
- Kinesthetic aftereffects, 3
- Knowledge, 246-247, 254, 262-282
- Labor-management negotiations, 258
- Latency distributions, 292
- Law of opposites, 64
- Learning, 29-67, 78, 95, 102, 117-135, 158-168, 174, 183, 206, 230-239, 253, 255, 270, 279-282, 286
Also see Behavior and Performance
 ability, 162
 acquisition, 282
 active-passive, 161, 174
 associative, 34-67
 capacity, 40-43, 49, 55, 61
 coelenterate, 35
 curve, 286
 discrimination, 95, 102, 167-168
- Learning (*cont'd*)
 evolution, 30-31, 34, 37-39, 41, 61, 66
 continuity-discontinuity, 39
 independence-dependence, 39
 genetic assimilation, 42
 innate, 270
 intercalation and fixed-responses, 42
 language, 262-264, 269-270, 279-282
 latent, 117, 123
 massed vs. distributed practice, 164
 maze, 183
 memory, 32-33, 46-49, 117-135, 230-239
 performance effects, 122, 158, 162, 253
 retention, 48
 reversal, 160-164
 role of, 206
 spatial discrimination, 159-160, 163
 speed, 162
 state-dependent, 51
 state-specific, 65
 theory, 78
- Lesion, 235
- Limbic system, 80
- Locomotion, 181
- Locus coeruleus, 130-131
- Martian professor, 292
- Mass action principle, 77
- Maturation, 187, 220, 230
- Maze, 170, 174, 230, 237
 complex, 230
 learning, 170, 174
 patterns, 237
- Meaning, 271, 279
- Memory, 32-33, 46-49, 117-135, 230-239
Also see Learning
 consolidation, 117, 124
 drug enhancement, 124
 facilitation, 122
 human, 135
 modulation, 126, 135
 recent, 231
 retention, 48
 trace, 120
- Menstrual cycle, 227
- Mental processes, 266-280
- Mental systems, 262-268
- Mentalism, 73
- Mesencephalic reticular formation, 124, 126
- Methamphetamine, 203

- Microfilm reader, 233
- Mind, 29
- Molar behavior, 262, 264
- Motivation, 74
- Motives, 257
- Multimodality, 290
- Multiple nodes, 295
- Multiple paths, 295
- Multiple process systems, 291, 294-295, 297
- Multiplicity of origin, 291
- Myosin, 239

- Natural selection, 30, 34, 39, 49, 57, 64
- Naturalistic analogues, 42
- Nature-nurture dispute, 86
- Neocortex, 154, 164, 169-170
- Nerve cells, 237
- Nest-building birds, 55-58, 65
- Network of relations, 253
- Neural events, 292-294, 300, 308
- Neural mechanisms, 81
- Neuroanatomical traits, 145
 - in house mouse, 145
- Neurochemical traits, 145
- Neurogenesis, 220
- Neurons, 215-216, 219-220, 232-233, 235
 - nuclear area, 219-220, 232
 - pyramidal, 233
 - stellate, 233
- Neurophysiological traits, 175
- Neuropil, 235
- Nicotine, 121-122
- Noncognitive explanations, 256
- Nonhomogeneous trials, 302
- Nonlinear function forms, 253
- Norepinephrine, 127-130
- Norethynodrel, 230
- Nuclear safeguards, 258
- Nucleic acid, 189

- Observer condition, 193
- Oddity discrimination, 122
- Odor, 80-81
 - illness, 81
- Open-field activity, 158-174
- Operationalism, 81
- Organizing principles, 255
- Orientation, 41-48
 - approaching, 47
 - withdrawing, 47
- Outcome feedback, 254-255

- Pavlovian studies, 82
- Pentylene-tetrazol, 121-122
- Perception, 46, 53, 56-57
- Performance, 60, 117, 237, 269
 - Also see* Learning
- Perikaryon, 218, 220, 232-233
- Phenomenological method, 4, 271-278
- Photomicrographs, 232
- Physostigmine, 122
- Picrotoxin, 122
- Pituitary, 127, 227
 - gland, 227
 - hormones, 127
- Plasticity within constraint, 43
- Pleiotropism, 174
- Postlesion growth, 235
- Postsynaptic thickening length, 235
- Predictive utility, 45, 255
- Preference, 91, 95, 98-109
 - activation of, 95
 - color, 107
 - development, 91, 108-109
 - form, 102-105
 - modification, 91, 98-102, 108-109
 - theories of perceptual, 91
- Pregnancy, 230
- Principle of invariance, 66
- Probability, 21-22, 44-66
- Pseudoconditioning, 82
- Psychoactive drugs, 258
- Psychology, 3-4, 288-289
 - chronometric, 289
 - experimental, 288
 - mathematical, 288
 - physiological, 288
 - social, 3-4
- Psychometrics, 145

- Radiation, 79
- Reaction time studies, 285-309
- Reactivity, 53
- Reasoning, 43, 61-64
- Recall, 52-53, 58
- Reductionism, 4-5, 11-12, 22-25
- Reflection, 274-281
- Reflex, concept of, 38
- Refractory period, 288
- Reinforcement, 32, 45, 60, 73, 90, 102-104, 254
 - thermal, 90, 102-104
- Representation, 46, 246-248

- Reproduction, 30-67
 advantage, 41-64
 mode, 59
 potential, 50
 success, 30-67
 Research technology, 247
 Response, 36-38, 76, 122, 152-157, 286-295, 302
 approach, 36-38
 correlated to selection, 152, 154, 157
 delayed, 122
 discriminated sensitization, 37
 distribution of times, 295
 latencies, 286, 293
 tendency, 76
 withdrawal, 36-38
 Retention, 48
 Retinal degeneration, 147, 152, 160, 162
 Reverberating neural circuits, 120

 Sampling, 73, 294
 theory, 73
 Schizophrenic patients, 258
 Selection, 30-66, 144, 148, 170, 175, 288
 advantages, 175
 differential, 148
 experiments, 170
 pressure, 45
 program, 144
 Self-awareness, 275
 Sensitization, 32-49
 Sensory input, 191
 Sex hormones, 227
 Similarity of events, 49-50, 64
 Simple models, 255
 Skeletal muscle, 239
 Sleep, 131-132
 REM, 131-132
 Social implementation, 248
 Social judgment theory, 246, 250, 255-257
 Social problems, 246
 Social psychology, 250
 Social technology, 292
 Sodium, 230
 Space, 46-48, 57, 64
 Spatial, 48, 50-53, 76
 association, 48
 contiguity, 50-53
 hypothesis, 76
 Species-specific behavior, 62, 74

 Spinal cord, 153, 155, 170
 Statistical models, 12
 Also see Analysis
 Stereotypy, 39
 Stimuli, 33-37, 46, 56, 59-60, 105-107
 124-126, 192, 197, 201, 254, 289, 294, 298-99, 302-303
 approach, 34
 auditory, 303
 classification of events, 34
 ecological validity, 46
 electrical stimulation of brain, 124, 126
 extracage, 192
 functional validity, 46
 inanimate and social, 197, 201
 intensity, 298
 modality, 299
 orientation preferences in chicks, 105-107
 posttrial, 125
 releasing, 56, 59-60
 response, 254
 stimulus-based constraints, 294
 withdrawal, 33
 Stress, 183
 isolation, 183
 Strychnine, 121-122, 207
 Substantia nigra, 126
 Symbols, 269, 275, 278
 Synapse, 232-235
 asymmetrical, 234
 length, 235
 membranes, 232
 number, 235
 Systematic design, 248

 Task, 36, 161-170, 237, 287, 301-303
 active avoidance, 162
 active-passive, 161-162, 164
 binary classification, 303
 delayed alternation, 123
 passive avoidance, 162-168, 170
 reversal discrimination, 237
 successive discrimination, 36
 variations, 287
 Taste aversion, 79-82
 Technology, 249, 257
 Teleology, 18-21
 Temporal contiguity, 45, 50-54, 81
 Terminus event, 44-65
 Territory, 65

- Testis, 225
- Traits, indirectly conjoined, 157, 174
- Tryon maze, 76

- Ultimate causes, 20, 24

- Variability, 17-18, 301, 304, 309
 - intrasubject, 309
- Variables, 305
- Variance, 292-302, 309
 - data, 309
 - estimates, 294

- Variance (*cont'd*)
 - observed, 292
 - parametric, 294
- Variation, 38-39, 146, 289
 - interindividual, 39
 - intraindividual, 39
 - phenotypic, 146
- Vascular flow, 232
- Visual hypothesis, 76

- Water, 158-168, 190, 258
 - maze, 158-168
 - resource planning, 258