General Subject Index

^{14}C-2-deoxyglucose technique, 142, 145–146
3-hydroxyretinol, 193, 204, 207–209, 211, 212
4-hydroxyretinal, 300

Absorption
 efficiency, 302
 spectrum, 166, 193, 194, 204, 207–209, 212, 215
Acceptance angle, physiological, 80, 81, 82
Accessory olfactory system, 273
Acetylcholinergic synapses, 277
Acoustic interference, 346
Acoustic signal
 disturbance, 338, 345
 mate location, 336
 spacing, 337
 species-specificity, 336–337, 347
Acute zone, 241, 258, 260. *See also* Compound eye, acute zone
Adapting angle, 286
Adaptive tuning, 167
Aggressive mimicry, 10
Agonistic displays, 298
Alarm substance, 273
Algorithm
 backpropagation, 151, 153
 computational, 99, 100
 features relating, 157, 160
 prey recognition, in mantids, 101
Alternative male morphs, 345, 347–348
Amacrine cells, 82, 291
Ambient light, 289
Angle of polarization, 286
Annular light stimulus, 294
Aperture detection, 124–125
Appetitive behavior, praying mantids, 90
Apposition eye, 79, 84, 241, 246. *See also* Compound eye
Araneophagic, 5, 36
Artificial horizon, 287
Artificial neural network (ANN), 101, 153
Associative grouping, 66, 73
Associative learning. *See* Learning, associative
Associative recall, 67
Attack, predatory, 239, 314
Attention, 142, 144, 159
Attentional priming, 12

Background effects, 121, 123, 136–137
Banked retina, 300
Barrier detection, 124, 158
Basal ganglia, 142, 159
Basement lamina, 277, 296
Basement membrane, 294
Benthic, 288
β (beta)-band 209, 212
Bezold-Brucke Effect, 178
Bilateral symmetry, 288
Bimodal convergence, 123, 129, 133–134
Binocular disparity, in mantids, 105–107
Binocular
 input, 127–128, 133, 147
 visual field, in mantids, 79–81, 91
Biodiversity, 307
Bioluminescence, 302
Bird cone cells, 285
Birefringent, 250
Blue-shifted, 253–254, 300
Brain
 lesions, 138, 140, 144–145, 158
 size, 13
Brightness-matched camouflage, 289
Broad-band, 202, 212, 263
Butterfly, 193–219

Campaniform sensilla, 316, 333
Carotenoid-based filters, 263, 285

Carotenoid, 215
Catching patterns, in amphibians, 118
Category formation, in amphibians, 156
cDNA, 193, 210
Cell assembly, 149–151
Central brain, 273
Central photoreceptors, 297
Cerci, 314, 329
Channel molecules, 297
Chemical senses, 119, 272
Chemotactile memory, 272
Chordotonal organ
 anatomy of, 339
 distance perception, 343–344
 exteroreceptive functions, 342–343
 mismatch to signal carrier frequency, 341
 neuronal projection patterns, 343
 serial, 339–340
Chromatic aberration, 23
Chromatophore, 166, 193, 204, 284, 285
Ciliary muscles, 276
Circadian rhythms, 275
Circalunar rhythms, 275
Circular polarization, 304
Circularly polarized light, 249, 250
Closed loop behavior, 19
Coarse coding, 316
Cochlea, 265, 266
Cognition, 9, 10, 12. *See also* Learning
Cognitive
 capacity, 41, 72
 limitations, 188
 process, 72, 74
Collaterals, 277
Colliculus, superior, 157
Color
 based context-specific decisions, 189
 categories, 181
 categorization, 178
 change, 284
 coding, 170, 172
 constancy, 177, 181–184, 195, 198, 199, 263, 264, 265
 contrast, 178, 289
 detection, 170
 discrimination, 174, 188, 189, 198, 199, 218, 219, 297
 filters, 302
 and flower choice, 183, 184
 matching, 285
 opponency, 266, 304
 opponent coding, 171, 174, 175
 preference, 183–186
 principal, 198
 processing, 177
 receptors, 170, 246
 saturation, 178
 sensitivity, 302
 space, 179, 180, 182, 188, 189
 vision, 23–26, 124, 165, 173, 174, 179, 193–195, 199, 218, 285
Colorblindness in octupus, 285
Colorblind system, 302
Color-matched camouflage, 289
Color-opponent channels, 288
Combinatorial aspects, 160
Command
 element, 147
 releasing system, 147
Complex mazes
 following a sign, 52, 54
 symbolic cues, 53, 55
 unmarked mazes, 53, 56, 57
Compound eye, 14–18, 77–82, 173, 199, 202–204, 213, 216, 218. *See also* Eye; Ommatidia
 acceptance angle, 80–82
 acute zone, 79–82, 91, 95, 106–108
 corneal lens, 21, 79
 dioptric apparatus, 79–80
 facet, 79–80
 integration time, 82
 interommatidial angle, 80–82
 light sensitivity, 80–81
 motion sensitivity, 82
Computation, explicit/implicit, 155
Conditioning
 visual-olfactory, 145
 visual-visual, 144
Cone cells, 215, 285
Cone opponency, 291, *See also* Opponency; Opponent
Configurational selectivity, 134, 155
Contrast

detection, 119, 121, 129
discrimination, 288
enhanced, 285
enhancement, 304
enhancer, 290
mechanisms, 283
patterns, 288
sensitivity, 80–81
stimulus, 328
Coordinated binocular vision, 283
Copulation, 314
Cornea, 202, 246, 255, 257, 267. *See also* Compound eye
Corneal lens. *See* Compound eye
Counterilluminating, 305, 306
Countershading, 274
Courtship, 314
Crystalline cone, 79–80, 203, 246, 254, 255, 257. *See also* Compound eye
Cues
chemical, 6, 12, 13, 36
odor, 6
visual, 12, 34–36
Cuticle, 314
Cut-off filter, 302
Cyclically, 273

Dance language, x
Dark adaptation, 277
Darwin, Charles, 336, 349
Dehydroretinal, 300
Delayed match-to-sample, 64, 67
Delayed nonmatch-to-sample, 67
Dendritic fields, 281
Depolarizations, 292
Depth
of field, 16
of focus, 276
perception, 136, 147
Descending
contralateral movement detector (DCMD), 100–108, 112–114
ipsilateral movement detector (DIMD), 88, 101, 112–113
mechanosensory interneurons, 322, 324
Detection, visual, 145–152, 329
Detour behavior, 124, 158
Detour, ix, 9, 11–12, 20, 21, 36
Detoxification stress proteins, 276
Dichromatic
channels, 265, 266
color vision, 288
Dishabituation, 121–122, 158
Disinhibition, 140, 142, 145, 159
Disruptive
body pattern, 284
skin patterns, 285
Distal rhabdoms, 300
Distance estimation, in mantids, 110–112
Downwelling light, 242, 243
Dragline, 6, 9

E-vector, 249, 264, 266
angle, 249, 288
orientation, 279
Edge detection, 120, 292
Effective stimuli, 120, 273
Efferent nerves, 291
Electric vector, 290
Electroretinogram (ERG), 79, 81, 82, 285, 291
Electrotonic junctions, 277
Elementary motion detectors, 87, 88, 114
Enhanced contour detection, 283
Enhancing visual contrast, 288
Epidermal hair cells, 273
Epigamic rhythms, 12
Epi-illumination, 203, 210, 217
ERG. *See* Electroretinogram
Escape, 123, 147, 158
and visual stimuli, 120, 329
touch-evoked, 324
wind-evoked
Evolutionary transitions in bladder grasshoppers, 348
Explicit computation, 155
Extraocular photoreceptors, 275
Eye. *See also* Compound eye
anterior lateral, 20–21, 37
anterior median, 20–34, 37
camera, 14
compound (*see* Compound eye)
human, 15
movements, 117, 258, 259, 260, 261, 267

Eye. *See also* Compound eye (cont.)
 muscles, 274
 posterior lateral, 19
 posterior median, 15
 principal, 14, 19, 20–34, 37
 secondary, 14, 15–20, 37
 shine, 215–219
 tube, 21, 30, 33–35, 37
 vertebrate, 15

False color phenomenon, 302
Fast escape responses, 273
Feature
 detection (in toads), 119, 121, 125, 138, 149, 151–152, 155
 relationships, 119, 136, 155–156
Feeding, 117–118, 142, 144, 146, 155, 215
Field of view, 15, 33–34, 244
Filter pigment, 247, 250, 251, 252, 253, 254, 263, 267
Flicker fusion frequency, 81–82
Floral detection, 174
Flower, 193, 195, 198, 199, 213, 218, 219
 colors, 170
 constancy, fidelity, 188, 189
 structure and constancy, 190
 scent constancy, 190
Fluorescence, 203, 204, 210, 213, 215
 microscopy, 203, 213
 ommatidial, 204
 spectrum, 204
Flying, 111–112
Focal length, 15, 16, 18, 21, 276
Foraging, 64, 67, 72, 73
 decisions, color learning, 186
Forebrain, 138–145, 158–159
Fovea, 30–33, 241
 mammalian, 15
Foveal acquisition, 260
Fused rhabdom, 279. *See also* Rhabdom

Ganglia
 terminal abdominal, cockroach, 316
 thoracic, cockroach, 316
Ganglion cells, retinal, 84, 126, 128
Gastropod mollusks, 289
Gating a response, 142, 159
Giant interneurons, 322
Glass cells, 21
Global image motion, 90, 107
Glutathione S-transferase, 276
Gonadotropin, 273
Gustatory stimuli, 123

Habituation, 121–122, 158, 273
Hairs, filiform, 314, 316
Head-preference phenomenon, in toads, 120–121
Hearing, 335
Hearing sensitivity, bladder grasshoppers, 340–341
Heterogeneity, in butterfly retinae, 202, 203, 213, 2116–219
Horizontal
 axes, 286
 grid, 124
 orientation, 286
 polarized, 289
 polarizer, 290
 stripe, 119
Hue, dominant wavelength, 178, 179
Hunting strategy, 300
Hybridization, 210, 211

Illusory contour, 48
Image motion, 90–99, 107, 117, 121, 123
 distance estimation, 90–91, 95, 110–112, 136
 global, 90, 107
 local, 88–90, 91–99
 self-induced, 90–91, 107–112
Image sharpening, 292
Image-forming vision, 275
Implicit computation, 155
Impulse generator sites, 294
Inferior frontal lobes, 272
Information transfer, optic lobe, 82–88
Information, mechanosensory, 133, 322
Inhibition, mutual, 292
Innate color preference, 186–188
Inner ear, 274
Integration
 mechanosensory, 33, 133
 visual, 33

Intensity, brightness, 179, 180
Interference, 215
 reflection, 215
Interneurons, visual, 82–88, 100–108, 112–113, 128, 332
Interommatidial angle, 80, 81
Intracellular recordings, 287, 294
Intrinsic cells, 83
Iridophores, 284, 297
Isochromatic, 289
Isoluminous, 289

Jetting escape response, 273
Julesz
 pattern, 98
 texture, 125, 136

K+ channel blockers, 273
Kainic acid, 138

Labeling, 210–212, 218
Lambda (λ) max, 302
Lamina, 82–85
 acute zone, 84
 amacrine cell, 82
 cartridge, 82–85, 256, 257, 266
 ganglionaris, 243, 254, 256, 257, 265, 266
 monopolar cells, 82–85
 retinotopic organization, 82, 127
 signal amplification, 84–85
 spatial resolution, 85
Landmarks, 42, 56, 72
Landing reaction, in mantids, 111–114
Lateral
 forebrain bundle (LFB), 142
 inhibition, 277, 292
 line system, 273
 processing, 297
Layered reflectors, 306
L-DOPA, 273
Learning, 193–195, 199, 276. *See also* Memory
 associative, 73, 90, 144–145, 158, 285
 concept, 67
 concept, difference, 71
 concept, sameness, 69, 70
 context dependent, 62, 63
 experiments, 288
 and memory, 64
 nonassociative, 121–122, 158
Lens, 276. *See also* Compound eye
 crystallin, 276
 corneal, 21, 33
 pit, 21
 secondary, 21, 30
 telephoto, 21–23, 33
Leucophores, 284
LGMD-DCMD complex, 99–107, 108, 112–114. *See also* Descending contralateral movement detector
Light
 adaptation, 279
 guides, 30–32
 organs, 300
Light-flash, 291
Light-guiding, 279
Linear polarization, 249, 304
LMC. *See* Monopolar cells
Lobula, 87–89
 dynamic integration, 112–114
 giant movement detector (LGMD), 100–108, 112–114
 movement-sensitive cell L-15, 103, 105
Local image motion, 88, 90
Looming stimuli, 119, 124, 129
Lower motor areas, 273
Luminance, 302
 contrast, 289

Mantle, 272
 cavity, 269
Map, spatiotopic, 127, 316
Mate choice, bladder grasshoppers, 348
Mate-approaching, in toads, 147–148, 156
Matthiessen ratio, 276
Maze, 42, 43, 48, 52, 53, 54, 55, 56, 58, 59, 60, 61, 62, 67, 74
Mechanical senses, 14
Mechanoreceptors, 272, 273, 314
Mechanosensation, 313
Medial pallium, posterior ventral, 143–146, 158
Median inferior frontal lobe, 281
Mediating pathways, 140, 157–158

Medulla
columnar neuron, 85–87
elementary motion detector, 87, 112
externa, interna, terminalis, 243, 254, 256, 257
large-field neurons, 85
in mantids, 82–87
(medullary) columnar neurons, 85, 86, 87
spatial integration, 87
Melanin-based pigment, 284
Memory, 42, 64, 72, 73, 186, 276, 281. *See also* Learning
Meral spot, 240
Mesopelagic, 275, 300
Metamorphosis, 155
Microspectrophotometry, 252
Microvilli, 246, 247, 248, 249, 266, 277
Midband, 244, 245, 246, 247, 249, 250, 251, 253, 255, 256, 257, 258, 259, 260, 261, 263, 266, 267
Midget ganglion cells, 291
Model(s)
of brain function, 142–152
computational, 207, 209
systems, 313
Modulation of sound output, 344–345
Modulatory loops, 140, 142–146, 158–159
Molecular tree, mantid phylogeny, 78
Mollusks, 269
Monochromatic, 19
Monocular input, 128–129, 134
Monopolar cells, 82, 83, 84, 85, 87, 171, 172, 256
Motion detection, by toads, 117–123, 128–129, 133–138, 159
Motion
detector, 16
parallax, 50, 52, 110–112, 136
parallax neuron, 112
self-induced, 121
sensitivity, 82
Motivation, 147–148
Motor
centers, 283
coordination, 118, 147–148
pattern, 118, 147–148
pattern generator, 147–148
Movement(s), 117, 119, 155–156, 159
antennal, 331
direction, 120–121, 129
forward-backward, 90–91, 107, 110
mRNA, 206, 210, 211, 218
Multifunctional network, 146, 148
Multimodal convergence, 123, 129, 133–134, 146
Muscle proprioceptors, 275

Nerve cord, ventral, 316
Neural engineering, 149–152
Neural processing, 99–107
Neurite, 314
Neuroethology, 117–118, 313
Neuronal filters, 149–151, 155–157
Neuropeptide Y (NPY), 138–139, 155, 159
Neurotransmitters, 142, 284
Nucleus amygdalae, 145

Object motion, 117, 119, 121, 128, 130, 155
Obstacle-avoidance, 124, 133, 157–158
Off-center/on-surround, 294
Off-response, 119, 121, 128–129, 131, 138
Oil droplets, 215, 285
Olfactory
nerves, 273
organ, 272
stimuli, 123, 126, 145–146
Ommatidia, 80–82, 165, 171, 302. *See also* Compound eye
fluorescing, 203–204, 208, 209
On/off-response, 128–129
On-response, 128, 131
Open loop behavior, 19
Opponency, 289. *See also* Cone opponency; Opponent
Opponency-like, 291
Opponent
coding, 170
interactions, 277, 292
polarization channels, 297
processing, 248, 256, 265, 266, 267, 268, 292
Opsin, 166–168, 193, 206, 210, 212, 218, 251, 300

Optic
 flow, 91, 107
 ganglia, 82–88, 173
 lobe(s), 82–88, 171–173, 175, 177, 275–277, 281
 nerve, 256, 257
 tectum, 126–128, 131–132, 134–137, 143, 145–148
Optimal color receptors, 170
Optimal flower choice, 188
Optokinesis, 258, 259, 260
Optokinetic nystagmus, 117, 158
Optomotor response, 174
Orientation, 18–20
 detector, 63
 visual, 329
Oviposition, 215

Pair formation, bladder grasshoppers, 336
Palpation, 326
Parcellation theory, 155
Parsimony, neural, 313
Partial linear polarization, 284, 279
Path regularity
 constant turn maze, 56, 58, 61, 62
 irregular maze, 58, 62
 zig-zag maze, 58, 59, 61, 62
Pattern
 orientation, 42, 43
 recognition, 41, 42, 145–152
Peak emission, 306
Peduncle lobe, 275
Peering movement, in mantids, 90, 109–110, 112
Perception/action translation, 144, 159
Perceptual
 category, 92, 156
 unit, 126, 313
 world, 313
Peripheral photoreceptors, 248, 297
Pheromone(s), 13, 273
 detection, 273
Photon capture, 277, 288, 302
Photophores, 300
Photoreception, 275
Photoreceptor
 cell, 77, 82–85, 165, 167, 193, 199–204, 207–215, 218, 277, 287
 collaterals, 291, 294
 spectral sensitivity, 169, 171–175, 186
Photosensitive vesicles, 275
Phototaxis, 124, 131, 173
Phylogenetic analysis using parsimony (PAUP), 78
Phylogeny, 75–78, 152, 167–169, 185, 186
Physiological channels, 157, 286
Pigment, 202
 cells, 79
 fluorescing, 204
 granules, 279
 screening, 202, 204, 207, 209, 213, 215
 visual, 193, 200, 202, 204, 207–213
Planktonic prey animals, 289
Platelets, 284
Plexiform layer, 277, 291
Polarization
 angle, 291
 contrasts, 291
 detection, 286
 distorting filter, 290
 motifs, 283
 opponency, 290
 patterns, 284
 percent, 302
 plane of, 276
 sensitivity, 277, 279
 stripes, 297
 vision, 246, 248, 249, 256, 259, 262, 264, 267, 283, 288, 298
Polarized light, 241, 243, 246, 247, 248, 250, 264, 286, 288
Polarizer, 286
Polychromatic vision, 245, 250, 255, 261, 265
Posterior chamber, 276
Postretinal processing, 297
Predator-avoidance, 120, 123, 133, 136, 144, 147–148, 156, 158
Predatory behavior, in mantids, 91–107
Premoto/motor
 neurons, 132
 systems, 143, 157–158

Pretectal
 thalamic neurons, 128–129, 131, 133, 135, 137–145, 147, 150, 155
 thalamic nuclei, 126, 131, 133, 138, 143
Pretecto-tectal influences, 138–146, 155
Prey
 capture zone in mantids, 107, 108
 catching in toads, 119
 filter, 149–152
 localization in mantids, 91–107
 recognition in mantids, 91–108
 selection, 119–123
 selective neuron(s), 100–107, 128, 135–136, 141
Preylike stimulus, 93–99, 120, 156
Processing streams
 interacting, 157–158
 segregated, 157–158
Processors, symmetric/asymmetric, 155–157
Proprioception, 273
Proprioceptive neck receptor, 273
Proprioceptors, 273
Protocerebrum, 172
Proximal layer, 300
Pseudomorph, 269
Pseudopupil, 259
Psychophysical studies, 93–99

Quarter-wave retarder, 250

Range finding, 20
Rayleigh's Law, 304
Reafference principle, 123
Receptive field, excitatory/inhibitory, 128–130
Receptor
 antennal, 324
 campaniform, 316
 cercal, 316
 flagellar, 324, 326
 output, 288
 potential, 291
 spectral sensitivity, 166, 168
Red-green color discrimination, 289
Red-shifted, 300
Reflectance, 290
Reflection, 215
 microscopy, 217
 spectrum, 198
 tapetal, 213
Reflective surfaces, 287
Refracted, 279
Regionalization, 213, 215–218
Releasing mechanism, 149–160
Representation of the visual world, 283
Response properties, neuronal, 127–130
Response threshold, 272
Retina, 16, 117, 126–131, 135, 137, 172, 194, 199, 200, 212, 276
 anterior median, 23–33
 dorsal, 285
 ganglion cells, 126–130, 135
 layer I, 23, 30–33
 layer II, 23, 26–30, 32
 layer III, 23, 26, 32
 layer IV, 23, 26, 32
Retinal, 285
Retinal image motion, 88–99, 107–112
 and distance estimation, 90–91, 95, 110–112
 global, 90, 107
 local, 88–90, 91–99
 self-induced, 90–91,107–112
 spatial summation, 98–99
 temporal summation, 98–99
Retinal projections, 126–127
Retinalaldehyde, 193
Retinotopic, 127, 281
Retinular cell, 246, 247, 248, 249, 251, 253, 254, 255, 291
Rhabdom(ere), 16, 26, 30–32, 165, 200–203, 207–215, 277, 279
Rhodopsin, 16, 19, 23, 193, 208, 209, 215, 218, 248, 250, 251, 255, 279
Risk-sensitive decisions, 188
Roeder, Kenneth, 313

Saccade(s), 33, 117, 258, 259, 260, 261
Scanning
 eye movements, 260, 266
 visual, ix, 34, 37
Schema theory, 149
Screening pigment, 277, 297

Search, 9
Search costs, 188
Secret wavelength, 306
Segregation, processing, 157
Selective attention, 9
Semicircular canals, 274
Sensitivity, spectrum, 204, 207, 208, 209, 211, 212, 215
Sensorimotor code, 147–148
Sensory
 filters, 150, 165
 space, 316
Shell, 269
Signal processing, 150, 256
Signal structure, bladder grasshoppers, 336
Skin
 color, 283
 texture, 283
Sky compass, 26
Smoke screen, 8
Sound production mechanism, bladder grasshoppers, 345
Sound transmission, 345–346, 347
Spatial
 acuity, 15, 18, 26, 32, 216
 integration, 87
 resolution, 80, 81, 85, 292
 vision, 291
Spectral
 absorbance, 288
 channel, 265
 purity, color saturation, 177
 reflections, 284
 sensitivity, 251, 277, 285, 302
 bandwidth, 199, 209
Spectrum, mechanosensory, 314, 319
Spherical aberration, 276
Spike activity code, 287
Staircase, 32–34
Statocysts, 273
Stellate ganglion, 275
Stimulus
 continuum, 120, 135, 156
 filtering, x, 150
 priming, 6
 velocity, 119, 128–129
Striatum, caudal ventral, 142–144, 159
Subfrontal lobes, 272
Subtectal neurons, 133
Sun compass, 173
Surround inhibition, 123
Sustained response, neuronal, 128–129
Swimming, 269, 273
Symbolic delayed match-to-sample, 64, 65, 66, 67, 68
Symmetry, of visual stimuli
 bilateral, 46, 47
 circular, 42, 43
 radial, 42, 43, 45, 46, 48

Tactile stimuli, 129, 133–134
Tangential cells, 82
Tapetum, 213, 215
Tectal neurons, 100, 127–140. *See also* Optic tectum
Tegmental neurons, 129, 133, 148
Tegmentum, 129, 133, 140, 146, 148
Telencephalon, 127, 142–146, 157–159
Temporal resolution, 81
Tentacles, 283
Tetrachromatic, 250
Tetrapods, 159
Texture, 124–126, 128–129, 136–137
Thalamic neurons, 128–131, 133–140
Thalamic nuclei, 131, 143, 145
Thalamus, anterior, 143–146
Thalamus, pretectal, 126, 131, 133, 138, 143
Threatening stimuli, 119–120, 123, 133, 144, 147–148
Top-down processing, 41, 49, 51
Tracking
 antennal, 328
 visual, 258, 260–261
Transmission maximum, 304
Trial and error, 9–11. *See also* Learning
Trichromatic, 193, 199
Trichromatic vision, 250

Ultraviolet, 193, 195, 199, 219
 light, 244, 245, 251, 253, 254, 255
 polarization, 26
 vision, 165, 287
Umwelt, xi, 36–40
Unpolarized light, 289

Velocity invariance, 119, 136
Ventral retina, 285
Vertical
 grid, 125–126
 lobe, 281
 orientation, 286
 polarizer, 290
 stripe, 120, 130, 135
Vertically polarized, 289
Vibration detection, 133, 272
Violet, 285
Visual
 absolute size, 119, 136
 acuity, 288
 angular size, 127–129
 cues, 118, 120, 122, 125–126, 130, 135, 156
 fibers, 171, 172
 field, 292, 331
 field, compound eye, 79
 global image motion, 90–91, 107–114
 local image motion, 91–107
 map, 126–127
 optic flow, 91, 107–114
 pattern recognition, 119–120, 122, 125, 135, 138, 150, 153, 156
 perception, 91–114
 pigment(s), 166, 167, 277, 297, 247, 248, 249, 250, 251, 252, 253, 255, 267 (*see also* Pigment)
 processing, convergent, 146, 148, 150, 153, 157–159
 processing, parallel distributed, 146, 148, 150, 157–159
Visuomotor system, 147–148, 281
Vomeronasal organ, 273
von Kries' receptor adaptation, 182
von Uexküll, J, 336, 350

Waveguide, 200, 202, 203, 207
Wavelength, 124, 128, 131, 158
 selective behavior, 173
 sensitivity, 289
 specific behavior, x, 265
Web, 8–9, 36
 signals, 8, 10, 13
Wind
 acceleration, 314
 ambient, 314, 316

Yellow-blue discrimination, 289
Y-maze, 42, 43