

Contents

1	Psychopathology and Neuroscience	1
1.1	What is Psychopathology?	1
1.1.1	Why Special Psychopathology—Clinical Aspects.	3
1.1.2	Neuroscience of Psychopathology.	5
1.1.3	Psychopathology of Syndromes	6
1.1.4	Research.	7
1.1.5	Classification of Symptoms and Subdivision	8
1.1.6	Example: Depressed mood, Depression Syndrome, and Depression Diseases	9
1.2	Introduction to the Chapter Structure	13
	References	19
2	Perception—Neuropsychological Disorders	21
2.1	Perceptual Elements	22
2.2	Object Perception	23
2.3	Clinic.	24
2.3.1	Apperceptive agnosia.	24
2.3.2	Simultanagnosia.	24
2.3.3	Disturbance of spatial exploration	24
2.4	Neuroscience.	25
2.4.1	Object Identification—“what pathway”	25
2.4.2	Ensemble Coding.	25
2.4.3	Object Identification	25
2.4.4	Constructivist Position of Perception	26
2.4.5	Specialized Neurons in Perception	27
2.4.6	Memory, knowledge, or perception	27
2.4.7	Imagination	27
2.4.8	Attention Effects	28
2.4.9	Forwarding of Object Information.	28
2.4.10	Effects of Disturbances in Elementary Information Processing Steps	28
2.5	Psychopathological Symptoms of Elementary Perception	30
	References	31

3	Episodic Memory	33
3.1	Introduction.....	33
3.2	Autobiographical Memory	34
3.3	Memory Processes	35
3.3.1	Encoding	35
3.3.2	Consolidation.....	36
3.3.3	Storage.....	36
3.3.4	Recall.....	36
3.4	Modalities	38
3.5	Methods of Investigation.....	38
3.6	Clinic.....	38
3.6.1	Anterograde amnesia.....	39
3.6.2	Retrograde amnesia	39
3.6.3	Course of the Development of Anterograde and Retrograde Amnesia	39
3.7	Diagnostics	39
3.7.1	Anterograde amnesia	42
3.7.2	Orientation Disorders.....	43
3.7.3	Retrograde amnesia	44
3.8	Neuroscience.....	44
3.8.1	Neuronal Memory Phenomena—Changes at the Synapses.....	47
3.8.2	Hippocampus and the Storage in Neuronal Networks	49
3.8.3	Post-Hippocampal Phase	51
3.9	Psychopathological Symptoms of Episodic Memory.....	53
	References.....	60
4	Attention	63
4.1	Introduction.....	63
4.2	Definitions.....	65
4.2.1	Categorical Distinctions.....	66
4.2.2	Dimensional Characteristics	67
4.2.3	Control of Attention.....	67
4.2.4	Course of Attention Processes.....	68
4.3	Disorders of Attention, Clinical Syndromes.....	69
4.3.1	Examples of Impaired Attention Functions in Psychiatric Disorders.....	69
4.3.2	Disturbance of the Components of Attention	71
4.3.3	Content-Related Attention Disorders.....	73
4.3.4	Attention and Age	74
4.3.5	Neglect.....	74
4.4	Diagnostics	74
4.5	Neuroscience.....	76
4.5.1	Vigilance and Fatigue	78
4.5.2	Arousal, Attentiveness	79
4.5.3	Focussed Attention.....	82

4.6	Psychopathological Symptoms of Attention	88
	References	92
5	Central Motor Function	95
5.1	Demarcation and Overview	95
5.1.1	Reactive Movements	96
5.1.2	Spontaneous Movement.	96
5.1.3	Action Motivated by Expectation of Reward.	96
5.1.4	Errors in Routine Motor Skills—Apraxia	97
5.2	Hierarchical Levels of Spontaneous Movements	97
5.2.1	Emergence of an Intention to Act	97
5.2.2	Concept of Action and Sequence of Motor Acts	97
5.2.3	Elementary Movements and Complex Movement Sequences	98
5.2.4	Control of Motor Processes	98
5.3	Clinic of Disturbance of Central Motor Act Scripts or Action Schemas	99
5.4	Diagnostics	100
5.4.1	Examination of Apraxia.	100
5.4.2	Specific Forms of Apraxia.	102
5.5	Neuroscience.	102
5.5.1	Motor Cortex	103
5.6	Psychopathological Symptoms of Central Motor Function .	105
	References	106
6	Executive Functions and Working Memory	109
6.1	Introduction.	109
6.2	Disruption of Executive Functions and Working Memory.	110
6.3	Neuroscience.	111
6.3.1	Control of Spontaneous Movements	111
6.3.2	Working Memory.	112
6.4	Neuroscience of Complex Executive Regulation	113
6.5	Psychopathological Symptoms of Executive Control.	113
	References	115
7	Drive, Intention Formation—Action and Movement Disorders	117
7.1	The Construct of Drive (Antrieb)	117
7.1.1	One’s Own Drive Versus Externally Motivated Drive	119
7.1.2	Unconscious Drive Variables.	119
7.1.3	Amount of Targeted Motor Actions as a Parameter of the Drive State	119
7.1.4	Action Dynamics and Effort	120
7.1.5	Various Factors of the Level of Drive	121
7.1.6	Ambivalence and Uncertainty of Information about the Process of Intention Formation	122

	7.1.7	Will Versus Drive	122
	7.1.8	Attention and Drive	123
7.2		Clinic	123
	7.2.1	Disorders of the level of drive	123
7.3		Diagnostics	124
7.4		Neuroscience	126
	7.4.1	Neurophysiology of Self-Generated Actions	126
	7.4.2	Neurophysiology of Drive Elements	126
	7.4.3	Model of Neurons in Premotor Integration	130
	7.4.4	Illusion of Self-Attribution of Action Initiation	131
	7.4.5	Metabolic Effects on Action Preparation and the Amount of Spontaneous Actions	132
	7.4.6	Neurobiology of Psychomotor Disorders	132
7.5		Psychopathological Symptoms of Drive and Psychomotor Function	132
		References	147
8		Consciousness	149
	8.1	Introduction	149
	8.2	Definitions	152
	8.2.1	Conscious Perception, Conscious Memory	152
	8.2.2	Components of Consciousness	152
	8.2.3	Concepts of “Unconscious”	157
	8.3	Clinic	159
	8.3.1	Disturbances of Consciousness and Awareness of the Environment	159
	8.3.2	Severe disturbances of awareness of the environment/transition into coma	160
	8.3.3	Disturbance of areas of consciousness	161
	8.4	Diagnostics	161
	8.5	Neuroscience	163
	8.5.1	Consciousness as system state of human information processing: Marginal factors	163
	8.5.2	Conscious Perception	163
	8.5.3	Masking	164
	8.5.4	Dual task	164
	8.5.5	Blindsight	164
	8.5.6	Active becoming aware	165
	8.5.7	Conscious and Unconscious Emotion	165
	8.5.8	Conscious Recall from Memory	166
	8.5.9	Conscious vs. Unconscious Action	166
	8.5.10	Minimal Neural Events for the Awareness of a Perception?	167
	8.5.11	Self-Generated Focus of Consciousness	168
	8.5.12	Sensory-Motor Feedback	168
	8.5.13	Summary	169

8.6	Psychopathological Symptomes of the Consciousness	
	Domain	171
	References	176
9	Language	179
9.1	Introduction.	179
	9.1.1 Language Comprehension	180
	9.1.2 Speech Production	182
	9.1.3 Classification According to Linguistic Criteria . . .	182
9.2	Clinic.	183
	9.2.1 Language Comprehension Disorder	183
	9.2.2 Speech Production	184
9.3	Diagnostics	185
	9.3.1 Testing Language Comprehension.	186
	9.3.2 Speech Production—Spontaneous Speech in the Interview	186
9.4	Neuroscience.	186
	9.4.1 Trained Neuronal Networks.	187
	9.4.2 Errors in Language Processing	188
	9.4.3 Dedifferentiation and Error Statistics	189
	9.4.4 Parallel Processing Paths in Language Comprehension and Hierarchical Processing Paths.	189
	9.4.5 Aphasic Errors and the Diagnosis of Brain Damage Symptoms	189
9.5	Psychopathological Symptoms of Language	190
	References	192
10	Thinking	195
10.1	Introduction.	195
	10.1.1 Everyday Thinking.	199
10.2	Functions of Thinking in Everyday Life.	201
	10.2.1 Organizing Everyday Needs	201
	10.2.2 Conversation in Everyday Life	202
10.3	Elements of Everyday Thinking	202
10.4	Clinic.	203
10.5	Diagnostics	205
10.6	Neuroscience.	207
	10.6.1 What Pathway	208
	10.6.2 Interaction of Bottom-Up and Top-Down Processes	208
	10.6.3 Activation of a Thought Content	208
	10.6.4 Two Simultaneously Active Thought Contents . . .	209
	10.6.5 Selective Activation and Becoming Aware of Thought Contents.	209
	10.6.6 Selective Activation of Thought Contents	210
	10.6.7 Frontal Loops.	212
	10.6.8 Selective.	212
	10.6.9 Working Memory in Thought Processes	212

10.6.10	Integration of Various Information Sources.	213
10.6.11	Role of Executive Functions in Thinking	215
10.7	Psychopathological Symptomes of Thinking—Formal Thought Disorders	215
	References	227
11	Emotion and Affect	229
11.1	Introduction.	229
11.1.1	Emotion, Mood, Affect, and Valence.	230
11.1.2	Which Sensations Are Counted Among Emotions	231
11.1.3	Subjective and Objective Aspects of Emotions . . .	232
11.1.4	Psychopathological Factors in Contrast to Normal Emotionality	233
11.1.5	Triggering, Experience, and Expression	234
11.1.6	Position in Psychopathology	236
11.1.7	Emotional Experience—An Epiphenomenon? . . .	237
11.1.8	Incompleteness of Clinical Evidence.	238
11.2	Clinic.	238
11.2.1	Disorder of Emotions, Affects	238
11.3	Diagnostics	240
11.3.1	Reaction of the Person to the Experience of the Emotion	243
11.4	Neuroscience.	243
11.4.1	Introduction	243
11.4.2	Different Levels of Emotions.	245
11.4.3	Neuropsychiatric Findings.	249
11.4.4	Neuroscientific Models of Specific Emotions . . .	249
11.4.5	Neuroscience of Affect Control	258
11.4.6	Summary of the Neuroscientific Aspects of Emotion	261
11.5	Psychopathological Symptoms of Emotion and Affect . . .	261
11.5.1	Negative Valence—Depressive Syndrome.	262
11.5.2	Positive Valence	276
11.5.3	Aggression	278
11.5.4	Other Emotions	281
11.5.5	Emotional Responsiveness and Affect Control . . .	282
11.5.6	Obsessive Thoughts and Actions	290
	References	294
12	Illusions and Hallucinations	297
12.1	Introduction.	297
12.1.1	Distinctions	299
12.1.2	Hallucinations as So-Called “Psychotic Symptoms”	299
12.1.3	Dimensions of Hallucinations	299
12.2	Clinic.	302
12.3	Diagnostics	303
12.4	Neuroscience.	304

12.4.1	Neuronal Networks and Hallucinations	305
12.4.2	Abnormal Electrical Activity	305
12.4.3	Disturbance of Afference and Monitoring	305
12.4.4	Imagination and the Activation of Primary Sensory Areas	308
12.4.5	Integration of Various Pathophysiological Factors	309
12.5	Psychopathological Symptoms of Illusions and Hallucinations	313
	References	320
13	Ego Disturbances	323
13.1	Introduction	323
13.2	Manifestations and Differentiation of Ego Disorders	323
13.2.1	Quality of Experience	324
13.2.2	Disturbance of the Self-Environment Boundary	325
13.2.3	Dimensions of the Experience of the Self	325
13.3	Clinic	325
13.4	Diagnostics	326
13.5	Neuroscientific Explanatory Approaches	326
13.6	Psychopathological Symptoms	328
	References	333
14	Delusion—Content-related Thought Disorders	335
14.1	Introduction	335
14.1.1	Defining Elements of Delusion	337
14.2	Forms of Delusion	338
14.2.1	Influencing Factors on Delusional Themes	338
14.2.2	Secondary Delusion	339
14.2.3	Insight Disorder Due to Cognitive Deficits	339
14.2.4	Influence of Emotion on Delusion	339
14.2.5	Course of Delusion	341
14.2.6	Transitional Forms	342
14.3	Clinic	342
14.3.1	Delusion in Schizophrenia	342
14.3.2	Delusion in depression	343
14.3.3	Delusion in obsessive-compulsive syndromes	343
14.3.4	Capgras syndrome	343
14.3.5	Delusional disorder	344
14.3.6	Delusional Symptoms in Dementia	344
14.4	Diagnostics	344
14.4.1	Delusion-Driven Behavior	345
14.5	Neuroscientific Explanatory Approaches	346
14.5.1	Specific Mechanisms Explaining Delusion Formation	346
14.5.2	General Mechanisms	349
14.5.3	Emotional Influences on Delusional Thoughts	350
14.5.4	Maintenance of the Delusion	351

14.5.5	Other Influencing Factors	352
14.6	Psychopathological Symptoms	353
	References	358
15	Judgment Ability	361
15.1	Introduction.	361
15.2	Impairment of Judgment	364
15.3	Diagnosis of Judgment Ability	364
15.3.1	Examination Procedures	365
15.4	Psychopathological Symptoms of Judgment Ability	365
	References	369
16	Outlook	371
	References	372