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MENTAL MEDICINE AND NURSING

FOR USE IN TRAINING-SCHOOLS FOR NURSES AND IN MEDICAL CLASSES AND A READY REFERENCE FOR THE GENERAL PRACTITIONER

BY

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FOREWORD

THIS handbook is simply an introduction to the study of mental diseases.

In undertaking its preparation the writer had in mind a text-book that could be used conveniently by the pupil-nurses attending lectures on this subject. While the manuscript was yet in embryo, it seemed best to extend the scope of the work to meet the needs of the busy practitioner, and other students who may find the usual manuals on psychiatry too complex and diffuse for ready reference.

The writer has endeavored to be as practical as possible, and has omitted secondary matters and abstract questions still in dispute. It is to be hoped that this small treatise may accomplish what its projector had in view. Its field is elementary and plain. In sending it out the hope is cherished that it may find favor with those for whom it is intended.

The writer takes this occasion to acknowledge his indebtedness to the well-known authors of text-books, especially to Diefendorf, De Fursac, White, Stoddart, Craig, Town, Potts, and the counsel and help of his colleague, Dr. A. C. Buckley, whose suggestions and aid in proof-reading have been of invaluable assistance.

R. H. C.

PHILADELPHIA, September, 1914.

DEFINITIONS

Acrophobia.—Morbid dread of draughts of air.
Agnosia.—Loss of perceptive power.
Agoraphobia.—Morbid dread of open spaces. Dread of crowds of people.
Aphasia.—Defect or loss of power of expression by speech, writings, or signs.
Apraxia.—Loss of power of forming coördinated movements.
Aprosexia.—Inability to fix the mind on any subject.
Arithmomania.—Insane habit of counting objects, with worriment about numbers.
Astasia.—Motor incoördination with inability to stand.
Astasia Abasia.—Inability to stand or walk.
Atavism.—Inheritance of characters from remote ancestors.
Ataxia.—Failure of muscular coördination.
Automatism.—Performance of acts without conscious volition.
Bulimia.—Insatiable appetite.
Carphologia.—Picking at bedclothes; usually a sign of great exhaustion.
Catalepsy.—Neurosis marked by suspensions of sensibility and voluntary motion.
Cerea Flexilitas.—Waxy flexibility, in which the limbs can be moulded into any desired position. Sometimes called lead pipe condition.
Claustrophobia.—Morbid dread of being in an enclosed space.
Coma Vigil.—Stupor with wakefulness; a grave form of coma.
Confabulation.—Falsification of memory. When gaps in memory coöperate in the performance of any function.
Coördination.—The harmonious activity of those parts that are filled in with false statements.
Coprolalia.—Morbid impulse to utter obscene words.
Decubitus, Acute.—A bed-sore seen in connection with cerebral lesions.
Délire à deux.—The morbid influence of one disordered mind on that of another in producing insanity.
Délire de toucher.—Fear of contact, of contamination, of infection.
De lunatico inquirendo.—A commission or jury for investigating the mental status of a person whose sanity is questioned.
Dipsomania.—Morbid impulse to drink.
Echolalia.—Echo-speech. Insane repetition of words heard.

Echopraxia.—Insane repetition of actions seen.
Ego.—The personality, or personal identity.
Emunctory.—Excretory or cleansing; an excretory organ, as intestines, kidney, etc.
Enteroclysis.—The injection of nutrient liquids into the intestines.
Ergophobia.—Morbid fear or dread of work.
Erythrophobia.—Morbid fear of blushing.
Folie circulaire.—Circular insanity.
Folie du doute.—Insanity of doubting.
Hæmatoma Auris.—Blood tumor of the ear.
Hæmatoporphyrinuria.—Blood in urine, due to unwise use of sulphonal.
Homosexuality.—Sexual perversion toward those of the same sex.
Hyperprosexia.—The total absorption of the attention—absent-mindedness.
Hypochondriasis.—Morbid anxiety.
Hypodermoclysis.—Injection of fluids into subcutaneous tissues.
Irabundia Morbosa.—Morbid anger as seen in epileptic and hysterical subjects.
Kinæsthesia.—The sense by which muscular movements are perceived.
Kleptomania.—Morbid impulse to steal.
Korsakoff's Psychosis.—Insanity with polyneuritis, usually alcoholic.
Logorrhœa.—Excessive or abnormal talkativeness.
Macrocephaly.—Excessive size of head.
Masochism.—Sexual perversion with enjoyment of being cruelly treated.
Mattoid.—A paranoiac, or crank.
Megalomania.—Delusions of grandeur.
Microcephaly.—Abnormal smallness of head.
Monomania.—Insanity on a single subject.
Monophobia.—Morbid dread of being alone.
Mutism.—Dumbness; inability to speak.
Mysophobia.—Morbid dread of contamination and filth.
Negativism.—The natural impulse is overcome by an opposing one; the actions are directly opposite to the ones desired.
Neologism.—Repetition of senseless expressions.
Nosophobia.—Morbid dread of sickness.
Nyctophobia.—Morbid dread of darkness.
Obsession.—A persistent idea or besetment.
Onomatomania.—Tormenting ideas concerning the names of persons, etc.
Othæmatoma.—Blood tumor of the ear.
Panophobia.—Vague and persistent dread of some unknown evil.

Paramimia.—Loss of power to make natural gestures and movements.
Paramnesia.—Partial derangement of memory.
Phobia.—Morbid fear, or dread.
Psychasthenia.—Nervous exhaustion with marked mental symptoms.
Pyromania.— Morbid impulse to burn.
Simulation.—Feigning insanity by one already insane.
Syphilophobia.—Unwarranted belief on part of patient that he is suffering from syphilis.
Verbigeration.—The repetition of senseless expressions.

CONTENTS

PART ONE

CHAPTER PAGE

I. The Central Nervous System 1
The Sympathetic System; The Cerebrospinal System

II. Neurons—Tracts 7
The Neuron; Tracts

PART TWO

III. Mental Processes 17
Methods of Investigation; Mind

IV. Apperception 21
Reproduction; Passive Apperception or Association; Active Apperception (Reasoning and Imagination); Subconsciousness

V. Feeling and Emotion 33
Feelings; Emotions

VI. Sensory Projection Field 35
Sensation; Classes

VII. Motor Projection Field 40
Bodily Movements; Involuntary Action; Voluntary Action or Volition; Conclusions

VIII. Complexes; Dreams; Autistic Thinking 46
Complexes; Dreams; Autistic Thinking

PART THREE

IX. Insanity 52
Causes of Mental Disorders: Predisposing Causes; Exciting Causes

X. General Symptomatology 62
Disorders of the Process of Perception: Insufficiency of Perception; Illusions; Hallucinations; Clouding of Consciousness

XI. Disturbances of Mental Elaboration..... 70
Impairment of Memory; Disorientation; Disturbances of the Formation of General Ideas and Concepts; Disturbance of the Train of Thought; Disturbances of Reasoning and Judgment; The Transformation of the Personality; Disturbance of Capacity for Mental Work

XII. Disturbances of the Feelings and Emotions 82
Exaltation; Depression; Persistent Morbid Emotions; Sensibility to Pain; Change of Appetite; The Sexual Feelings

XIII. Disturbance of Volition and Action..... 86
Decreased Psychomotor Activity; Increased Psychomotor Activity
Compulsion; Impulsion; Stereotypy; Negativism; Suggestibility
Special Indications: Somnambulism; Brittleness of Bones; Blood Tumor of the Ear; Writing

PART FOUR

XIV. Forms of Mental Diseases..... 95
Classification: (1) Infection Psychoses: Infection Delirium; Fever Delirium; Postfebrile Psychoses; (2) Exhaustion Psychoses: Collapse Delirium; Acute Hallucinatory Confusion; Melancholic and Neurasthenic States; (3) Toxic Psychoses: Alcoholism; Morphinism; Cocainism

XV. (4) Auto-Intoxication Psychoses..... 106
Thyroigenous Psychoses; Dementia Præcox; General Paresis

XVI. (5) Psychoses Due to Organic Cerebral Affections..... 123
Arteriosclerosis; Cerebral Tumors; Cerebral Syphilis, etc.; (6) Psychoses of Involution: Involutional Melancholia; Senile Dementia; (7) Degenerative Psychoses: Manic-Depressive Psychosis; Paranoia

XVII. (8) Constitutional Psychopathic States..... 139
Mental Instability; Anomalies of Sexual Function; Obsessions; (9) Psychoses Based on Neuroses: Epileptic Psychosis; Hysterical Psychosis; (10) Defective Mental Development: Idiocy and Imbecility

PART FIVE

XVIII. The Patient from the Physician's Viewpoint..... 159
Prophylaxis; Convalescence; Hydrotherapy; Rest; Insomnia; Hypnotics

XIX. The Patient from the Nursing Viewpoint.. 184
The Nurse; Administration of Medicine; Exercise; Occupation and Diversion

XX. Food and Feeding, Etc..... 206
Food; Artificial Feeding; Relative Merits of Nasal and Œsophageal Feeding
Suicide; Homicide; Irritability; Destructiveness and Unclean Habits; Seclusion; Mechanical Restraint

APPENDIX

Poisons..... 221
Corrosive Poisons: Corrosive Mineral Acids; Corrosive Vegetable Acids; Corrosive Alkalies; Corrosive Organic Derivatives; Irritant Poisons: Antimony; Arsenic; Mercury; Iodine; Lead; Phosphorus; Narcotic Poisons: Opium; Aconite; Belladonna; Chloral Hydrate; Chloroform; Strychnia and Nux Vomica

ILLUSTRATIONS

FIG.		PAGE
1.	The Central Nervous System	2
2.	Medial Surface of the Brain, Showing the Medulla, Pons, Cerebellum, and Cerebrum	4
3.	Neuron Projection Cell, or the Golgi Cell of the First Type	7
4.	Short Axis-cylinder Cell or Intermediary Cell; the Golgi Cell of the Second Type	8
5.	Association Fibres or Tracts	10
6.	Diagram of the Direct or Voluntary Motor Tract	11
7.	Diagram of the Indirect or Involuntary Motor Tract	13
8.	Diagram of the Direct Sensory Tract	14
9.	Diagram of the Indirect Sensory Tract	16
10.	Diagram of the Mental Processes (1)	18
11.	Diagram of the Mental Processes (2)	19
12.	Diagram of Elements of Reaction Time	41
13.	Insane Chinaman	53
14.	A Case of Inherited Predisposition	55
15.	Arrested Mental Development in Infancy	56
16.	Psychosis of Adolescence in a Young Man	57
17.	A Common Type of Climacteric Psychosis	58
18.	Senile Psychosis in an Aged Man Eighty Years Old	59
19.	Strong Heredity, Slight Exciting Cause	61
20.	A Type Exhibiting Hallucinations of Hearing	65
21.	Clouding of Consciousness	69
22.	Disorientation	71
23.	An Imbecile Unable to Develop General Ideas	72
24.	Retardation of Thought in Stupor	74
25.	Flight of Ideas—Delirious Form	75
26.	Flight of Ideas—Rambling Form	76
27.	A Common Type of Systematized Delusions	78
28.	Organic Sensations Exaggerated	81
29.	A Case of Maniacal Excitement; Exalted and Happy	82
30.	Physiognomy of Depression	83

31. Manifested Fear 84
32. Insensibility to Pain 85
33. A Case of Decreased Psychomotor Activity 87
34. A Remarkable Case of Catatonic Rigidity 90
35. Waxy Flexibility 91
36. Deformity of the Ear Resulting from Hæmatoma Auris 92
37. Specimen of the Handwriting in General Paresis 93
38. Example of Exhaustion Psychosis 99
39. Alcoholism 102
40. A Case of Myxœdematous Psychosis 107
41. Cretin, Twelve Years of Age 108
42. A Hebephreniac 110
43. Catatonia 111
44. Paranoid Form of Dementia Præcox 112
45. General Paresis—First Stage 117
46. General Paresis—Second Stage 119
47. General Paresis—Third Stage 121
48. A Case of Organic Dementia 124
49. Melancholia, First Group 125
50. Melancholia, Second Group 127
51. Senile Confusion 128
52. Senile Delirium 129
53. Manic-depressive Psychosis 131
54. Typical Paranoia: Delusions of Persecution 135
55. Paranoia, Religious Type 136
56. Paranoia, Erotic Type 137
57. Paranoia, Litigious Type 138
58. A Noted Case of Sexual Perversion 141
59. A Case of Pyromania 143
60. An Epileptic, Disfigured by Burn 145
61. Hysterical Psychosis 150
62. Monstrosities or Monsters 151
63. High-grade Imbecile 152
64. A Case of Microcephaly in a Genetous Idiot 153
65. Hydrocephalic Idiot 154
66. Epileptic Idiot 155
67. Paralytic Imbecile 156
68. Blind Tom, Idiot-savant 157
69. Dr. Pinel at the Salpêtrière Hospital, Paris, 1793 160

70. Dr. Rush's "Tranquilizer" 164
71. Patient in Continuous Bath 170
72. The Wet Pack 172
73. An Insane Woman Burned at the Stake 185
74. Investigation of the Care of the Insane in England, 1816 186
75. Outdoor Recreation and Exercise for Patients and Nurses 192
76. Diversional Occupation in a State Hospital 194
77. An Insane Mulatto of Strong Homicidal Impulses 217
78. Mechanical Restraint, Illustrated by Nurses 220

PART ONE

CHAPTER I

The Central Nervous System

As the subject of insanity is intimately concerned with the brain and nervous system, we shall give attention briefly to a few general considerations in regard thereto.

The central nervous system, inclusive of the brain, in relation to the rest of the body has been compared to a horse and rider. The man on the horse's back governs and controls the horse. In like manner the nervous system governs and controls every part of the body (Fig. 1).

The central nervous system is divided into two general systems: (1) sympathetic system; (2) cerebrospinal system.

The Sympathetic System.—The term sympathetic system is used to designate a group of nerves and ganglia that differ somewhat in their functions from the other nerves and ganglia belonging to the cerebrospinal system.

The ganglia and nerves of the sympathetic system do not form an independent nervous system, for each ganglion is intimately connected by means of nerve-fibres with the rest of the nervous system, the whole forming an interdependent apparatus. The sympathetic system consists of a double chain of ganglia placed on each side of the spinal column, and united to each

other by longitudinal filaments. The sympathetic nerves are distributed to the viscera and blood-vessels, of which the movements are involuntary and the general sensibility obtuse. They form networks or plexuses upon the heart, about the stomach and other viscera in the trunk; they also enter the cranium, and send branches to the organs of special sense.

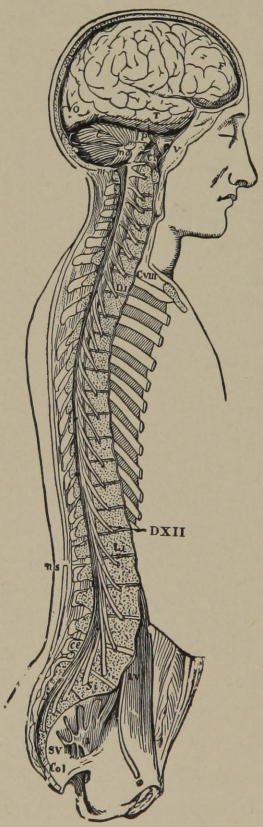


FIG. 1.—Central nervous system (after Quain).

Functions.—The principal functions of the sympathetic are to supply:

(1) Sensation and motion to the organs of nutrition;

(2) The regulation of the secretion by the various glands of the body;

(3) The control of the contraction and dilation of the blood-vessels; and

(4) The regulation of the fibres to some of the special senses, such as those that dilate the pupil of the eye, etc.

The cerebrospinal system is divided into the following divisions: spinal cord, medulla oblongata, pons varolii, cerebellum, and cerebrum.

The spinal cord is a column of gray and white matter, extending from the top of the spinal canal, where it is continuous with the brain, to the lumbar region, ending in a tail-like expansion called the *cauda equina.*

It is divided into lateral halves by an anterior and posterior fissure.

The gray matter occupies the inner portion of the cord, surrounding a minute canal in the centre, which extends the whole length of the cord.

The white matter is arranged around and between the gray horns, forming longitudinally the important pathways for the sensory and motor impulses to and from the brain, called spinal tracts.

The brain is constructed, as it were, upon the cord, and together they form the great cerebro-spinal axis, which by means of the cranial and spinal nerves is brought into relation with all parts of the body, as well as with the external world (Fig. 2).

The medulla oblongata is a wedged-shaped mass of nervous matter situated at the base of the brain. It is continuous with the spinal cord.

The medulla and pons are sometimes called the intermediate or junction brain.

By means of them, the great brain communicates with the lesser brain (the cerebellum), and the spinal cord with both.

In the medulla there are special centres, which govern complex muscular movements, such as

the vasomotor centre, which controls the calibre of the blood-vessels, and the respiratory centre, which coördinates the actions of the muscles of respiration.

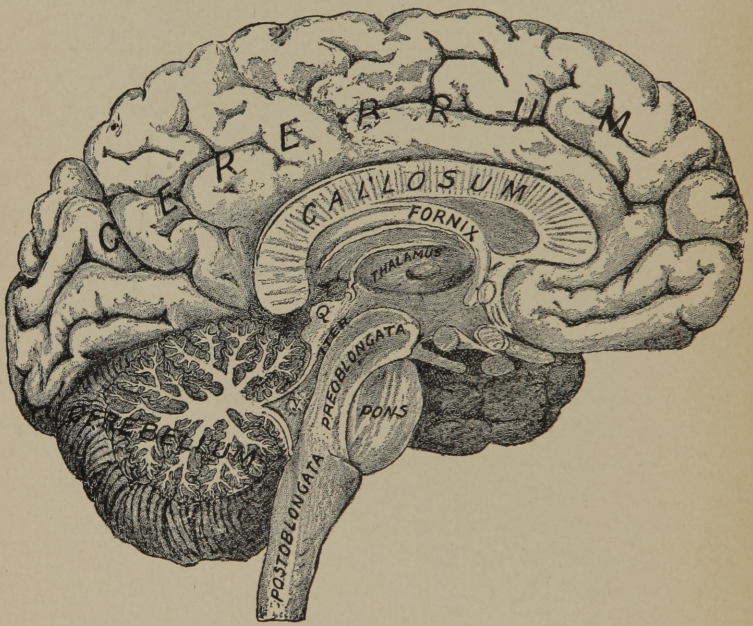


FIG. 2.—The medial surface of the brain, showing the medulla, pons, cerebellum, and cerebrum (Mills).

The pons varolii, or the bridge of Varolius, lies in front of the medulla oblongata and connects it with the cerebrum and cerebellum.

It consists of alternate layers of transverse and longitudinal white fibres, intermixed with gray matter.

The transverse fibres come mainly from the cerebellum, and serve to join its two halves; the longitudinal fibres are those connecting the cord and medulla with the cortex. These longitudinal fibres, passing through the pons, become visible in front of the bridge, as two broad diverging bundles.

These two bundles of fibres form what are called the crura cerebri, or the pillars of the brain, and are situated on the under surface of each hemisphere.

The cerebellum, or lesser brain, is situated below and at the rear of the cerebrum in such manner that when the brain is viewed from above it is concealed.

It is divided in the middle line into two hemispheres, each one being subdivided by fissures into smaller portions or lobes.

The cerebellum is the great coördinating centre for impulses which pass from the cerebral cortex to the voluntary muscles, as well as for impulses from the sensory paths in the spinal cord to the brain.

The cerebrum comprises the largest part of the brain. It is ovoidal, or egg-shaped, and fills the entire upper portion of the skull.

By the median fissure it is divided into two halves, called hemispheres.

Each hemisphere is subdivided into lobes. The surface of the lobes is folded, the folds or convolutions being deeper and more numerous in some brains than in others; the whole of the convoluted

surface, called the cortex, is composed of gray matter; *i.e.*, of cell-bodies and branching processes.

The cerebral cortex is involved in all of the functions and processes of the mind.

If we examine the whole brain we find that it consists of a number of isolated masses of gray matter—some large, some small—connected together by a multitude of medullated fibres (white matter) arranged in perplexing intimacy. But a general arrangement may be made out.

The numerous masses of gray matter in the interior of the brain may be looked upon as forming a more or less continuous column, and as forming the core of the central nervous system, while around it are built up the great mass of the cerebrum and the smaller mass of the cerebellum. This central core is connected by various bundles of fibres with the spinal cord, besides being, as it were, a continuation of the gray matter in the centre of the cord. It is also connected at its upper end, by numberless fibres, with the gray matter on the surface of the cerebrum.

The average weight of the brain in the male is about forty-nine ounces, in the female forty-four ounces. It appears that the weight of the brain increases rapidly to the seventh year, more slowly to the period between sixteen and twenty years, and still more slowly to the decade between thirty and forty years, when it reaches its maximum.

CHAPTER II

NEURONS—TRACTS

The Neuron.—The nervous system is composed of a vast number of units called neurons, each of which is made up of a nerve-cell, one or more dendrites and an axon (Fig. 3).

Nerve-cells vary considerably in size and form, though they are essentially of the same structure. They consist of a cell-body, containing a nucleus, which in turn contains a nucleolus. From the cell-body arise one or more processes, usually the latter, termed dendrites; and a process which differs in structure and function from these, called the axis-cylinder process, or axon. The length of an axon is variable. Some are only a fraction of an inch, others several inches to a foot or two, while there are fibres of the pyramidal tract of the cord, which sometimes measure thirty inches or more in length.

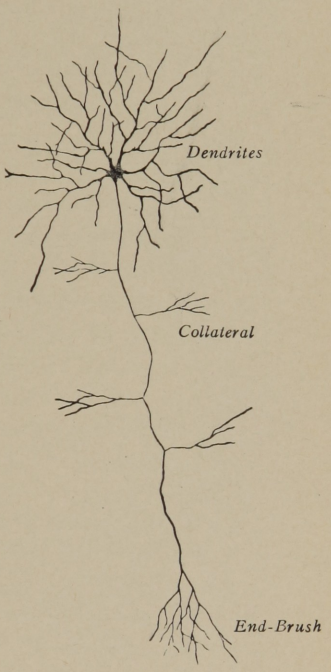


FIG. 3.—Neuron projection cell or the Golgi cell of the first type (Villiger's Brain and Spinal Cord.—Piersol).

Projection Cell.—The long axons give off branches at right angles to their course, termed collaterals. This type of cell is called the projection cell (see

Fig. 3), because the impulse generated in it is carried or projected to other and distant regions; this is the Golgi cell of the first type.

Intermediary Cells.—The Golgi cells of the second type are short axons, divided into a great number of branches. They play the part of connecting elements between other cells and are termed intermediary cells (see Fig. 4).

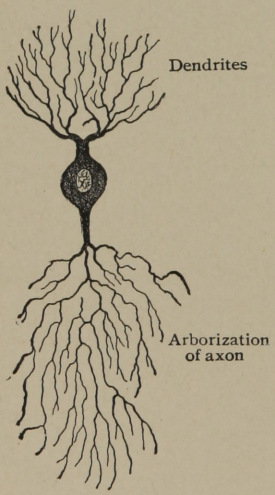


FIG. 4.—Short axis-cylinder cell or intermediary cell; the Golgi cell of the second type (Piersol's Histology).

The axons and collaterals end by splitting into a brush-like arrangement, termed the end-brush or end-tuft.

Nerve-impulse.—The neuron responds to appropriate stimuli. If a neuron is stimulated, we find that, while there is no visible alteration in the part stimulated, a change in the substance of the neuron takes place, which passes along throughout the entire neuron, and even to adjacent neurons, and in this manner from neuron to neuron often to a great distance. This invisible change which sweeps like a wave through the neuron is called the "nerve-impulse." One of the fundamental properties of the neuron is to conduct nerve-impulses. The passage of a nerve-impulse along

a neuron may be compared to the conduction of an electric current through a wire.

The cell-body may either (1) originate efferent or motor nerve-impulses of various kinds (cortical cells); (2) modify impulses received from another neuron (ganglion cells of cord); or (3) receive and translate (carry over) afferent or sensory impressions.

Motor impulses are carried away from the cell-body by the axon, which may end either by surrounding with its end-brush the dendrite of another cell or in the "terminals" of the muscles.

Sensory impressions are collected either by an axon from the periphery (sensory end-organs) or from the axon of another neuron by the dendrites.

In addition to the neuron contiguous to the axon, each neuron is brought into relation with a number of other neurons by means of the collaterals. Hence, the dendrites may be regarded as the receiving processes and the axons as the transmitting processes.

Centres.—The nerve-cells are found in the gray matter of the brain, spinal cord and the ganglia of the peripheral nerves. A group of them which together control some particular function of the body is known as a centre. As an example, the collection of cells situated in the lower part of the central convolutions which controls the movements of the tongue is called the "tongue centre."

The life of the cell-processes is dependent upon the cell-body. If the cell-body is destroyed, the processes die; or if a part of a process is cut off from the cell-body by any cause, it dies.

Tracts.—The axons form the various tracts of the nervous system. They are found chiefly in the peripheral nerves and the white matter of the brain and spinal cord.

The fibres which connect cortical centres directly with cells in the basal ganglia, the nuclei in the pons varolii and medulla oblongata and in the gray matter of the spinal cord, are termed pro-

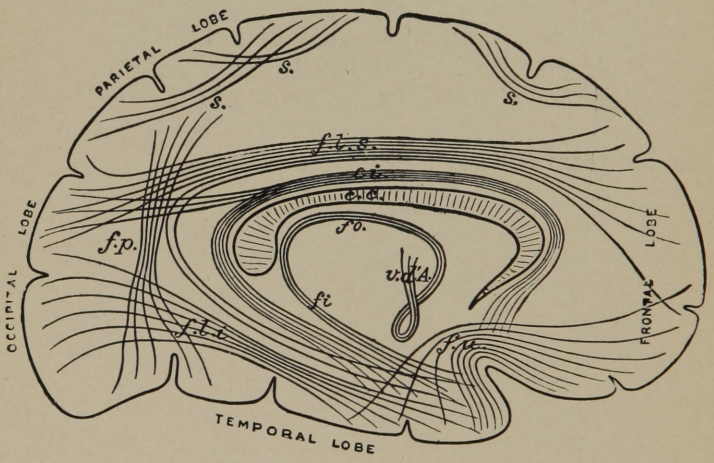


FIG. 5.—Association fibres or tracts: *s. s. s.*, between adjacent convolutions; *f. l. s.*, between frontal and occipital areas; *f. u.*, between frontal and temporal areas; *f. l. i.*, between occipital and temporal areas.

jection fibres. These fibres form the pathways by which motor impulses are carried from the cortex of the brain to the spinal centres; and by which sensory impressions are brought from certain ganglionic masses in the base of the brain to the cerebral cortex. These pathways, together with certain columns in the spinal cord and the periph-

eral nerves, form the motor and sensory tracts, which are, therefore, composed of two or more kinds of neurons.

Association Tracts.—All that part of the cortex (comprising about two-thirds) which is not

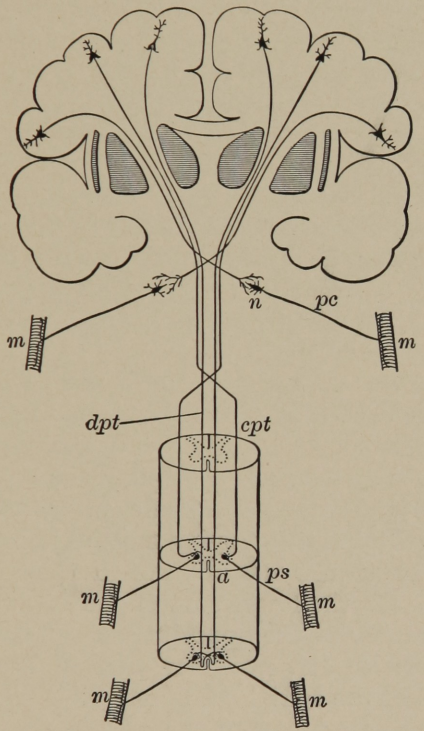


FIG. 6.—Diagram of the direct or voluntary motor tract, showing the centre of the motor impulses from the cerebral cortex to the voluntary muscles. *m*, muscles; *n*, cells of nuclei of motor cranial nerves in pons and medulla; *a*, motor cells in anterior horns of spinal cord; *dpt*, direct pyramidal tract; *cpt*, crossed pyramidal tract; *pc*, peripheral cranial nerve; *ps*, peripheral spinal nerve (Van Gehuchten) (Pott's Nervous and Mental Diseases—Lea and Febiger).

directly connected with the projection fibres, *viz.*, that part in which are not included the sensory and motor regions and special sense-centres, contains centres in which the various sensory impressions are collected, arranged and coördinated. These centres are termed association-centres, and are connected with the sensory and motor regions and special sense-centres by collections of fibres, termed association-tracts (see Fig. 5). Fibres also connect the centres of one side with the corresponding ones in the other. These are termed commissural fibres.

The Motor Tracts.—The motor pathways from the brain may be divided into the three following tracts for each side: (1) the crossed pyramidal tract, (2) the direct pyramidal tract, and (3) the indirect or cerebellar tract.

1. *The crossed pyramidal tract* has its origin in the motor centres of the brain, situated about the fissure of Rolando. The axons of these cells converge as they pass down through the brain until they reach the internal capsule, where they form a compact bundle occupying most of the posterior limb. They pass hence through the pons and medulla. In the lower part of the medulla most of them cross to the opposite side. These fibres pass down in the posterior part of the lateral columns of the spinal cord, and the "terminals" of these fibres surround the cells in the anterior horns. The axons from these cells form the motor division of the peripheral nerves (see Fig. 6).

2. The relatively few motor fibres (about one-fifth) which have not crossed, called *the direct*

pyramidal tract, pass down the cord in the middle portion of the anterior columns of the same side (see Fig. 6).

These two motor tracts, just described, are concerned in all voluntary muscular movements.

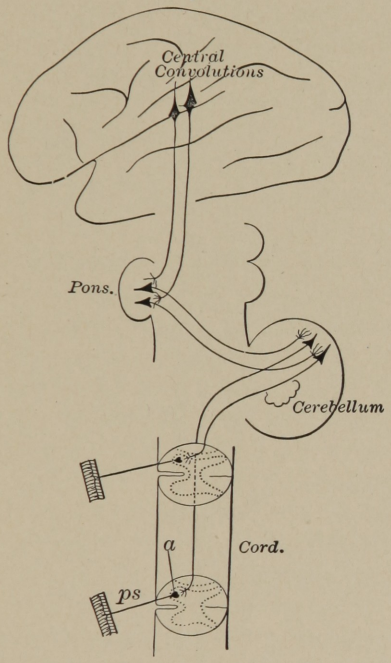


FIG. 7.—Diagram of the indirect or involuntary (cerebellar) motor tract (Pott's Nervous and Mental Diseases—Lea and Febiger).

The cortical cells originate the impulses and control or inhibit the functions of the spinal cells. The latter cells receive and distribute the motor impulses to the muscles, maintain their nutrition and with the sensory cells form reflex centres.

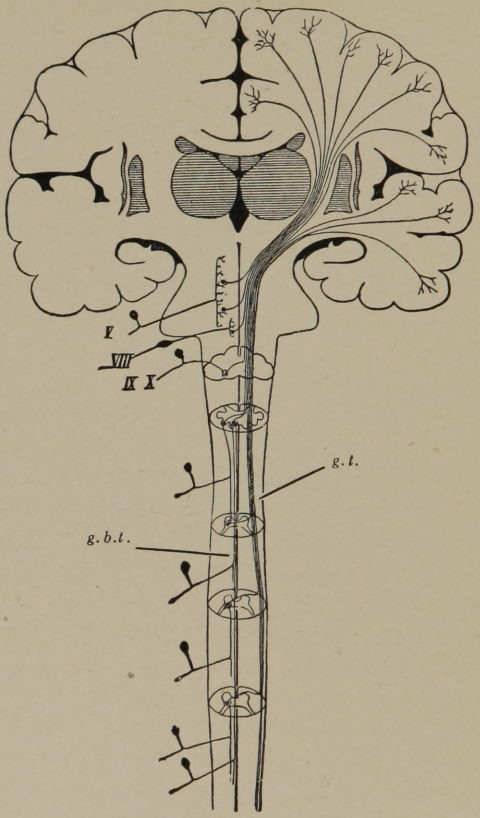


FIG. 8.—Diagram of the direct sensory tract. *V, VIII, IX, X*, sensory branches of cranial nerves; *g.b.t.*, Goll and Burdach tracts; *g.t.*, Gower's tract (Van Gehuchten).

3. *The indirect motor, or cerebellar, tract*, which arises in the central convolutions of the brain, forms connections with the optic thalamus and the pons nuclei and passes hence to the cere-

bellum. From here another series of fibres goes to the tracts in the spinal cord.

This tract plays a part in coördinating muscular movements and in automatic acts, and possibly in maintaining muscle-tone (see Fig. 7).

The Sensory Tracts.—The sensory pathways to the brain are more complex and difficult of study. The sensory areas may be divided into the three following tracts for each side of the spinal cord: (1) the dorsal tract, comprising the columns of Burdach and Goll; (2) the ascending anterolateral, Gower's tract; and (3) the direct cerebellar tract.

1. The fibres of *the dorsal tract* pass up the posterior columns to the nuclei, in which they end. The cells of these nuclei are the beginning of other neurons, the axons of which form the lemniscus, or fillet. Here they cross and the fibres run to cells in the optic thalamus, from which they pass up to the cerebral cortex by way of the internal capsule. In the cortex they are brought into relation with the motor neurons. Touch stimulation is probably conducted by this path.

Some of the fibres of this group leave the nuclei of the posterior columns, and by way of the inferior cerebellar peduncles of the same side reach the cerebellum. Hence another series of fibres passes to the optic thalamus, and thence by other neurons the tract reaches the cortex. Stimulation from the muscles and joints probably travels by this route (see Fig. 8).

2. Another series of fibres, after entering the

cord, surrounds, with its terminals, cells in the posterior horns of the gray matter. From these cells axons arise, which pass to the opposite side, where they form the *ascending anterolateral*, or Gower's tract. Part of the fibres of this column reach the optic thalamus by way of the fillet, and others go to the cerebellum. Pain and thermal (heat and cold) stimuli are probably conducted by this tract (see Fig. 8).

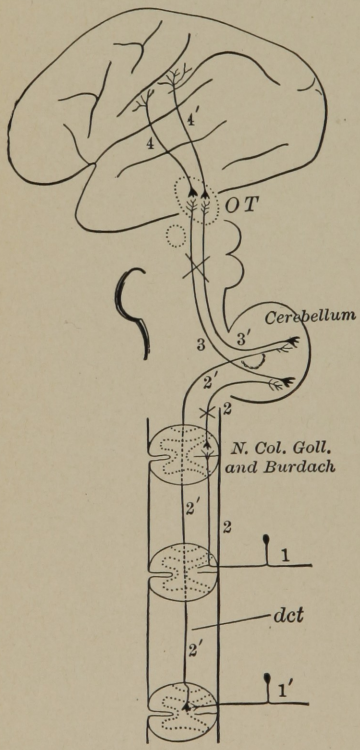


FIG. 9.—Diagram of the indirect sensory tract. *dct*, direct cerebellar tract. The numbers represent the different series of neurons (Pott's Nervous and Mental Diseases—Lea and Febiger).

3. Other ascending spinal fibres form a small lateral column in the cord, the axons of which form *the direct cerebellar tract* (see Fig. 9), which, without crossing, end in the cerebellum through the inferior peduncle. This tract also conducts stimulation from the muscles.

In addition to the cells and their processes, already described, the nervous system is composed of connective tissue, neuroglia, blood-vessels, and lymphatics. The whole mass is enveloped in three coverings called membranes.

PART TWO

CHAPTER III

Mental Processes

Having thus considered the nervous system, including the highest nerve centres of the cerebral cortex, which represent the physical basis of the mind, let us turn our attention to the psychic side of the subject and inquire in what way the mind does its work from the mental point of view.

The subject matter includes all thinking, feeling, and willing.

Methods of Investigation.—That mental phenomena are associated, in some way, with brain action modern scientists have effectually demonstrated. They have shown that without brain action there is no mental life. It further appears that similar modes of mental activity invariably accompany the activity of certain portions of the brain. It has been found, for instance, that the activity of the cerebrum is always accompanied by the more complex processes; that without a certain area of the occipital lobe one cannot see, and that an injury to Broca's area, in the inferior frontal convolution, results in disturbance of speech.

These conclusions have been reached as the results of investigations by five different methods.

1. The earliest method employed, known as the biological, consists in a comparative study of the brains of men and of animals.

2. The next method developed was that of extirpation, or cutting out. By this means certain areas of the brains of the lower animals were artificially stimulated or destroyed. The subsequent behavior of the animals thus subjected to experimentation was noted. The pigeon deprived

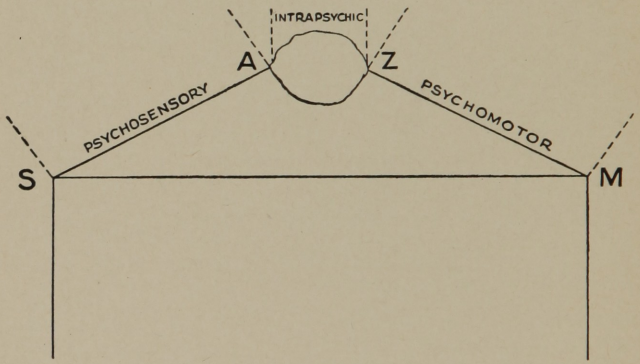


FIG. 10.—Diagram of mental processes. *s*, sensory projection field; *m*, motor projection field; *a*, initial idea; *z*, terminal idea.

of its forebrain grows dull and listless; the frog under similar conditions loses all power of voluntary motion, though it will jump if touched; the reflexes continue to act normally, but voluntary control becomes impossible.

The behavior of all animals deprived of the use of their cerebrum is comparable to that of human beings when suffering from profound dementia or enfeeblement of the mind.

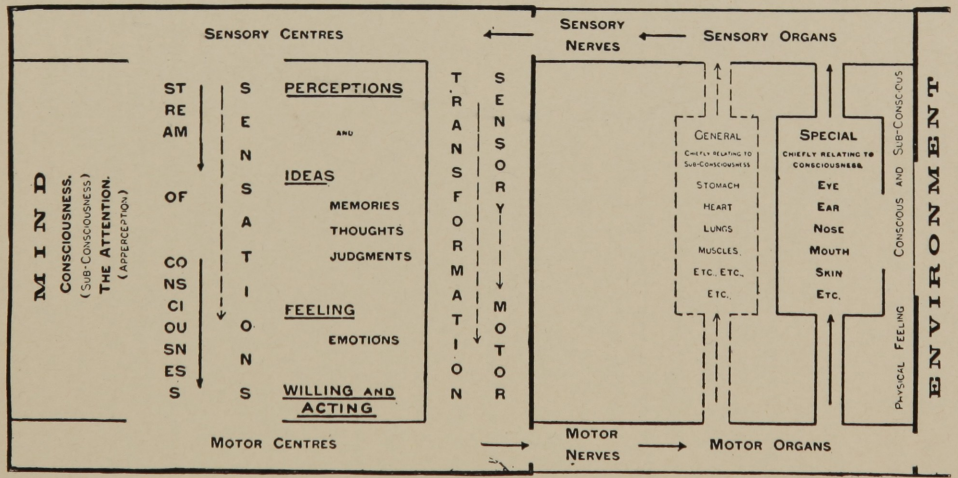


FIG. 11.—Diagram of the mental processes. This diagram is designed to give, at one view, an explanation of the mental processes; and to indicate that many component parts of the mental and physical mechanism should be taken into account as working together at the same time. (Courtesy of Dr. Edward Cowles, Harvard Medical School.)

3. The pathological method consists in the careful study of the mental states of the insane, or of persons otherwise mentally abnormal, and in an examination of their brains after death. The brain examination reveals just what parts of the brain are diseased. By reference to the former mental condition, it can be seen that mental functions are dependent upon the integrity of the diseased parts. It was by this method that Broca succeeded in localizing the speech centre.

The two other methods, (4) the histogenetic and (5) the histodegenerative, are used in studying the pathways for conducting stimuli to and from the brain. By the former the condition of the nerves at the various stages of development is discovered; and by the latter the progressive degeneration of the nerve after its severance from the cell-body is examined.

All that this information tells us, however, is that brain action and mental action accompany each other; that one is never present without the other. It does not explain why or how two such innately different processes are associated so invariably.

Mind may be considered the sum total of human experience considered as dependent upon a nervous system. Hence, mind may be defined, according to Titchner, as the sum total of mental processes.

As mind has no physical attributes we can know nothing of its essential nature, except as we study it in its manifestations. Like electricity,

for example, which has no body form, we know mind only through its operations.

There are two methods employed in the study of mind: (1) introspective or subjective; (2) experimental or objective.

First, by the introspective method we note the operations in our minds; second, by the experimental we subject other people to certain influences and note the effect.

CHAPTER IV

Apperception

The term *apperception* simply means something added to perception. This will be made clearer when we come to treat of sensations in following chapter.

If we follow the introspective method, and endeavor to look in upon the workings of our own minds to discover just what is there, we shall notice first of all that we are conscious of our surroundings, that we are seeing, hearing, feeling, etc. At the same time we shall find that these impressions, gained through the senses, are mingled with ideas of objects and events that we have seen, heard, and experienced in the past. Again, besides all of these thoughts, we notice some sort of a feeling of pleasure or pain, content or discontent; and possibly, also, a feeling of effort or strain in concentrating our attention.

If we examine still more closely, we shall find

that those ideas, which we at first considered entirely due to our surroundings, such as our impressions of people, pictures, music, and so on, are really dependent largely upon memories and other ideas, which are at the time present with us.

For instance, when we look at a picture of the cerebrum, we at once recognize it as such, because we have seen it before and know what it represents. If we had looked at the same picture before studying about the brain, we would have seen a drawing with certain lines and shadings, and nothing more. Our perception of the picture of the cerebrum is effected as certainly by means of our memories of past experience as by our visual perception.

A well-known fact which aptly illustrates this phenomenon is that our perception of the size of familiar objects is unaffected by varying the distance of the object. When a man is viewed at a considerable distance, he appears to us to be as large as he would be were he near at hand; while if a totally unfamiliar object of the same size were placed at a like distance it would appear much smaller than it would if near by. The mechanism of the organ of vision (the eye) is such that the greater the distance of an object the smaller is the image which it casts upon the retina and likewise the smaller is the resultant visual image. If our impression of the size of a man at a distance depended wholly upon the visual image, he would, therefore, necessarily appear smaller to us. The fact is that we see men at short distances so fre-

quently and know their size so well, that our idea of them is stronger than our visual image, which is modified greatly by the idea it has itself served to recall. This result is a perception of a man of normal size. As there are no memories to modify our impression of the unfamiliar object, our perception depends entirely upon the visual image, and the result is that we see a much smaller object. As an example in the field of hearing, we need only remember how much more clearly we hear spoken words at a maximal distance when they are given in a familiar sequence. Every word of a poem with which one is moderately familiar may be heard at a distance from which the import of an unfamiliar one would be totally lost. A suggestion of the word is offered by the perception and the associated memories supply the rest.

The modification of an impression by recalled ideas is something so great as wholly to transform the incoming impression and cause an illusion. This is exemplified when one is asked to judge of the weight of several boxes of different sizes and made of the same material, but filled so that they are all equal in weight. At sight the larger boxes are invariably judged heavier, and the small lighter. On lifting them, however, this great contrast is not realized; for the smaller seem so much heavier than would be expected, while the larger seem so much lighter, that the smaller ones are always judged to be heavier than the larger. The result of the former experience in this instance is so strong, that even after definite

knowledge of the actual weight of the boxes, one's judgment remains unchanged, as the smaller boxes still seem heavier. (Test it for yourself.)

Illusions may, also, be caused by a blending of new impressions with ideas which at the moment dominate consciousness, even though these dominant ideas have little in common with the impression. On a dark, lonely road, where one is apprehensive of meeting an unfriendly stranger, a slight noise may be readily interpreted as footsteps, or a couple of posts as highwaymen. In circumstances of this kind, the associated ideas are so much stronger than the sensory impressions that they gain the ascendency in consciousness, while the milder sensorial contribution lends them so great a character of reality that an illusion results. Many of the illusions of the insane may be explained in this way.

If we again turn our attention to our own thoughts, we will notice that they are continually changing. Some ideas pass away, suggesting others, which in turn prompt new ones, until the train of thought is abruptly changed by some strong impression from without.

Our introspection, or our looking in upon the workings of the mind, has shown us that our perceptions of surrounding objects are much influenced and modified by perceptions and ideas simultaneously present, and by our former thoughts; also, that each idea, as a rule, calls up many others. The name given to the mental

process by which all these connections and associations are effected is *apperception.*

Apperception may be defined as the blending and relating of a new impression or idea with the whole mental content.

The process implies two elements: (1) the new impression or idea; (2) a complex mental content, largely the result of past experience.

Reproduction.—As past experience plays so active a part in present consciousness, we must assume that one has the power to recall impressions and ideas which previously have formed a part of consciousness. This process of which we now speak is called *reproduction,* and appears to be one of the fundamental processes of the mind. Without it apperception would be impossible, because for an apperception, a blending with, an absorption of, the new by the residue of all related experience is effected.

That this past experience may act it is necessary it should be reproduced, because it does not have a continuous conscious existence.

There are two forms of apperception: (1) passive, and (2) active.

Passive Apperception or Association.—Although we undoubtedly possess the ability to recall past mental experience, we are sometimes unable to recall certain ideas, while others, without the slightest effort or even desire on our part, spontaneously recur.

When we try to discover under what conditions ideas are readily recalled, and under what conditions their recall is difficult, we find that *those*

ideas which have been in mind most frequently and under the most varying circumstances are most easily recalled. This seems to be due to the fact that an idea tends to recur whenever any idea that was previously associated with it in consciousness is again experienced.

Hence it follows that those ideas which have been most frequently in consciousness have formed more associations, and have thus established more avenues of recall.

The physiological explanation of these facts is based upon the theory of neural habit. This theory holds that when a brain area is stimulated a trace is left which consists of a tendency to repeat the action. A much weaker stimulus, therefore, is able to produce just as great a brain activity as in the first instance. Moreover, when the area is first stimulated the excitation is diffused to numerous brain cells and processes, leaving in each of them the same tendency to action. Later, when any one of these cells is aroused to action by appropriate stimulus the excitation spreads to all of the others which were before stimulated with it, and possibly, by the same process of diffusion, it may be carried to other cells still more remote. In this way larger and larger systems of associated cells and processes are developed. When any one of their number is stimulated there is a tendency toward action in all of the others.

On the mental side, we experience a sensation or perception simultaneously with the first brain

stimulation; and a number of other ideas or memory images simultaneously with the diffusion of the excitation. These impressions and ideas tend to return, and the presence of any one of them in consciousness is sufficient to arouse, in varying degree, any of the others. All sensations or ideas that have been previously associated in consciousness may be spontaneously recalled when any one of them is again experienced. The negative side of this statement is also true. An idea cannot recall any others that have not been associated with it. It frequently appears that an idea recalls other ideas similar or in contrast to itself, which have never before been associated with it. On close study, however, we find that, although these ideas in their entirety have never before been simultaneously experienced, elements in the ideas have been so experienced, and through these elements the total ideas are recalled. A blue flower, for instance, recalls a blue sky, not on account of the sky and the flower being alike in color, but for the reason that the elemental idea blue aroused by the sight of the flower recalls other ideational elements which have been before associated with it, and they happen to make up the idea denoted by the word sky. In instances of this kind the similarity between the ideas is so striking that we at first think of no other explanation. But the process differs not at all from other cases where there is not the least degree of similarity or contrast between the ideas. For example, on a winter night one may take up

from the table a new book, when immediately the thought of a canoeing trip of the preceding summer comes into one's mind. One element in the perception of the book is its green color, one element in the remembered experience is green foliage; the element green of the perception recalled previous associates and among them happen to be the canoeing trip.

It should be carefully noted that ideas as complex wholes do not appear to have the power of recalling other ideas. They always act through their elements. As experience increases in the individual, these elements form so many associations of so varied a character that the number of possible associations of any complex idea becomes very large. Different systems of association establish connecting links with many others. The mental content grows more and more complex. At the same time it becomes progressively blended together, so that our past experiences are more readily recalled; and we are able to make use of all of our previously experienced perceptions and ideas.

Perception, Cognition and Recognition.—If an object is comparatively strange to the observer, and recalls only a few associates, the result is a simple *perception.* A child's perception of the picture of the brain may be taken as an example. He sees simply a picture, but it has no meaning for him. If the object recalls a few more associates than it does in the case of a child, as the same picture does in the minds of those who are

familiar with the appearance of the brain, the result is a *cognition*. It is now perceived as a picture of the brain. If it recalls still more associates, as it does in the minds of those who have seen the same picture frequently, it results in a *recognition*. These last observers would perceive a picture of the brain, and would be conscious, in addition, of having seen it before. In all these instances, perception, cognition, and recognition, the recalled elements blend so immediately with the recalling—the sensory element—that they lose their individual character. We only discover their existence by realizing that the perception, cognition, or recognition would be impossible without the former experience. The character of the process is well illustrated by those slow recognitions, which are not complete until some past association of the object is brought to consciousness. In this case the recalling of the associates is slow and the blending takes place later.

Memory.—When there is no blending of the old with the new, when the recalled ideas retain their individuality, the result is a memory.

Passive Imagination or Fancy.—When these reproduced elements are combined in novel ways, unlike those combinations in which they were before experienced, we call the result an idea of imagination or fancy (phantasy). An example is "castle-building."

We have said that an idea or impression may recall all of its past associates. In reality, all of them are rarely, if ever, recalled. If an idea re-

calls all of the past associates of each of its elements, a great flood of unimportant, unrelated memories would completely drown the central idea, making impossible all logical thought.

As a rule, only the impressions and ideas recur: (*a*) that have been most recently in mind; (*b*) that have been most frequently in mind; and (*c*) are in accord with the emotional tone of the moment.

There are many individual differences. In some persons a large number of associates are recalled. We have all seen many persons of the circumstantial type, who, in relating an incident, insist upon dwelling on every petty and quite irrelevant detail. In this type of mind there is no goal idea; one idea recalls others, they in turn more, and soon such a person finds himself far from the original thought which initiated the train.

This type of thought belongs to *passive apperception or association.* It will be observed that there is no feeling of activity or effort connected with it, as is the case in all forms of passive apperception.

Active Apperception (Reasoning and Imagination).—In another class of mind, which we may designate as the second type, the recalled ideas include only those which bear some important or interesting relation to the central thought. The chief difference between this and the former type seems to be that in the latter there is a strong goal idea, *i.e.*, an idea with a strong motive element,

towards which all the thinking tends. This idea, on account of its strength, acts as a powerful recalling agent and is not itself lost in any of the ideas it recalls, but still acts as a recalling power. It is the centre of interest and attention.

This type, which is marked by an active attention to some distinct object of thought, is called *active apperception.*

All kinds of mental activity, other than pure sensation and simple reproduction, may be grouped under these two headings, *i.e.*, passive and active apperception. In all normal persons thought alternates between the two, in some persons one form preponderates, in some the other.

General or Abstract Ideas.—Through the gradual and continuous blending and combining of mental elements, ideas become more and more general. Consider, for instance, a young child's first experience in the country. It is early spring. The trees are covered with delicate green leaves, thinly veiling the graceful tracing of limbs and branches. He is told that they are leaves and he thinks of them as a part of the trees. Presently, however, he sees the flowers springing up all about him. He finds that from the flower's stem these little green leaves also grow. He then thinks of a leaf as something small, thin and green, which grows on a tree and on small plants. Later, he sees that all leaves are not green, that some are red, some are brown, and some are variegated in color. As he grows in knowledge, his

idea of a leaf becomes still more general. It does not now represent any one kind of leaf that he has seen, but it is a general idea, the result of the blending of his impressions of many kinds of leaves, differing in color, size, and shape. It is not a composite idea, analyzable into the many perceptions which have contributed towards its foundation, but a simple class idea or concept, under which any other ideas can be grouped. As experience gradually increases our stock of information, we thus generalize more and more, even forming new abstract ideas. As each abstract idea is rich in significance for the well-stored mind, thought is thus wonderfully facilitated.

Mental Activity in General Ideas.—There are two kinds of mental activity, based on thinking in general ideas: (1) the process of reasoning; (2) the process of active creative imagination.

The two processes are alike in that they are accompanied by a knowledge of some definite end in view, and a feeling that the attention is intentionally directed toward this end.

They differ in that in imagination the process is one of reproducing real experience, analyzing details, and combining the elements, so defined, in various ways; while in reasoning the process is one of comparing general ideas, finding their relations, and forming new concepts, as a result of the process. One or the other always results when an idea wholly dominates consciousness.

They are not intrinsically different modes of thought, but usually accompany one another.

To the activity of the imagination we owe much of our knowledge of mathematics, mechanics, science, philosophy, and ethics as well as a wealth of poetry, music, and art; while the process of reasoning makes possible a higher and even higher mental development. It is the most distinctive power of the human mind, and fixes man's place in the scale of creation.

The comparison and association of general ideas constitutes reasoning; the conclusions formed constitute judgment.

Subconsciousness.—The apperceptive activity, however, does not absorb the whole of the mind. We have seen that only those ideas that are attended to enter into the field of apperception. Besides this there is a mass of other sensations and perceptions, of which we are only vaguely conscious, accompanying the apperceptive thought.

This mass of sensations and perceptions constitute the field of inattention or the field of subconsciousness. These impressions may reach the apperceptive field later, or gradually fade altogether.

CHAPTER V

Feeling and Emotion

Feelings.—All mental processes are accompanied by certain general conditions of consciousness which are pleasant or unpleasant, pleasurable or painful, agreeable or disagreeable, These pleasurable or painful states result from sensory

stimulation and are due to kinæsthetic sensations. Owing to the ceaseless activity of the bodily organs there is at all times a complex of kinæsthetic sensations in consciousness. This complex results in a feeling. These feelings blend with those aroused by peripheral stimulation, and a more complex feeling results.

Emotions.—Just as numbers of sensations simultaneously experienced blend into one perception, so do numbers of kinæsthetic sensations blend into one feeling. And further, just as complexes of perceptions result in ideas, so do complexes of feelings result in emotions. Feelings are comparatively simple, and accompany perceptions; while emotions result when there is active thought with movements of ideas. We thus find that the element of an emotion, like the element of an idea, is always a sensation; the distinction between the two being that the sensational elements which enter into perceptions and ideas are referred to the external objects, while the sensational elements which enter into emotional complexes are referred to the organism. Feeling and emotion are peculiarly personal. We feel that the external world has no share in the experience.

An intense emotion of relatively short duration is spoken of as a *passion*, such as anger, terror, revenge, despair.

A *mood* is the temporary tone of feeling.

The *disposition* is the prevailing mood of an individual, such as despondent, pessimistic, optimistic, contented, hopeful.

Peculiarities.—One peculiarity of both feeling and emotion is the impossibility of recalling them in their original intensity. A new feeling may be aroused quite similar to the first but it will not be exactly the same. Example, try to recall a painful experience at the dentist's. This is probably due to the fact that feeling and emotion are largely based upon transitory organic conditions which are entirely beyond the control of the will.

Disturbance.—Emotional disturbance is one of the first and most pronounced symptoms of mental disease. It may indicate simply a deadening of intellectual capacity, which leaves the field of consciousness clear for the play of the emotions; or it may indicate a diseased condition of the emotional centres, their intense action impeding the action of the ideational centres, and thus crowding out the intellectual portion of consciousness.

As a result of this study of the feelings and emotions, we see that it is unnecessary to assume a new faculty to account for their existence. They are simply the result of a blending and combining of a certain class of sensations. They depend on the two processes of sensation and apperception.

CHAPTER VI

Sensory Projection Field

Sensation is the simple mental process by which one gains experience through the agency of external stimuli and muscular and organic movements.

The essential and prime function of sensation

is to supply the material on which the mind does the work in its subsequent thought and action. The mind gets no material in the first instance from any other source than the senses. All our experiences, all the things we know, all our opinions, attainments, beliefs, are absolutely dependent at the start upon this supply of material from our senses.

When certain brain cells are active certain sensations appear in consciousness; but these brain cells will not act unless stimulated. The stimulation is furnished by external objects and by the action of various bodily organs. As these are all at a distance from the brain some means of communication is essential.

These conditions are furnished by the sense organs and the sensory nerves. An external object stimulates a sense organ; it in turn propagates this excitation through its special sensory nerve to sensory cells in the cerebral cortex, the action of which is accompanied by sensation.

The possibility of experiencing a sensation depends upon the normal action of:

(*a*) A sense organ, *e.g.*, the eye, ear, etc.

(*b*) A sensory nerve, or nerve of special sensation to convey the impression to the brain, *e.g.*, the optic nerve, the auditory nerve, etc.

(*c*) A nerve-cell, or group of cells in the brain, to receive the impression, *e.g.*, visual centre, auditory centre, etc., within the brain.

If, for any cause, any one of these three parts fails to act, no sensation will be experienced.

There are at least eight distinct kinds of sensations:

1. Sight sensations through stimulation of the eye.

2. Hearing sensations through stimulation of the ear.

3. Taste sensations through stimulation of the nerves of the tongue.

4. Smell sensations through stimulation of the membrane of the nose.

5. Touch sensations through stimulation of nerves of the skin.

6. Temperature (heat and cold) sensations through stimulation of nerves of the skin.

Static (equilibrium) sensations through the stimulation of sense organs of the middle ear.

8. Kinæsthetic (muscular) sensations through stimulation of nerves of muscles and tendons, which are stimulated by all muscular effort and all organic movements.

In spite of the great specialization of function of the sense organs and nerves, the character of the sensation seems to depend mainly upon which brain centre is finally stimulated. If a sensory centre is stimulated centrally through diffused excitation, the sensation will be exactly similar to those externally stimulated. Moreover, if the centre or sensory nerve is artificially stimulated through touch, electricity, heat, or chemical action the result will be the same.

All the sensory centres and nerves of special sense respond to stimulation by contact, heat,

electricity, or chemical irritation; but each responds with the sensation which, as a rule, results from stimulation of its sense organ by the usual form of external stimuli.

For example, if the eye be closed and the optic nerve or visual centre be stimulated by electricity, a light sensation will result; if the ears be shut off from external stimulation and the auditory centres or nerve electrically stimulated, a sound sensation will be experienced. Any stimulation of the optic nerve or visual centres, from whatever source, results in a light sensation; any stimulation of the auditory nerve or centres results in an auditory sensation.

Central stimulation of special sense centres is, however, only effective after these centres have become habituated to responding to external stimulation. Should a child sustain a fatal injury to the eyes before this habit has been formed, no amount of central or artificial stimulation would produce light sensations. This fact seems to indicate that the specialization of function is dependent in the first instance upon the action and nature of external stimuli; and that later when the specialization is established the centre is incapable of responding in any other than the habitual way.[1]

[1] The difference of quality between sensations of the same class such as variation of color and tone, seems to correspond to variations in the external stimuli. For instance, four hundred and fifty million million ether vibrations per second result in the sensation of red, five hundred and twenty-six million million per second in the sensation of yellow, five hundred and eighty-nine million million per second of green, and eight hundred million

Classes.—Sensations may be grouped into two classes: (*a*) those aroused through the organs of special sense, and (*b*) those aroused by bodily and organic movements.

The Senses.—All the sensations of the first group are thought of by the person experiencing them as qualities of the stimulating object. The green of the grass is considered a quality of the grass, not a mental state following the stimulation of the optic nerves by certain ether vibrations reflected from the grass. Sound is thought of as coming from some object such as a piano or violin, not as the mental result of a stimulation of the auditory nerve by certain vibrations. Similarly, flavor is thought of as a quality of food, perfume as a quality of a flower, and hardness is referred to certain objects which feel hard. In reality, flavor, perfume, and hardness are sensations, purely mental phenomena, aroused by several forms of external stimuli.

The Personality.—The sensations of the second group, organic and muscular sensations, are likewise referred to the stimulating object. In this group, however, the object is always from the

million per second in the sensation of violet. In the field of audition, also, increase in the number of vibrations per second is accompanied by a change in the tone heard. It is probable that the different vibration rates stimulate different portions of the sense organs, which have become specialized to respond to them, just as the organ as a whole has become specialized to respond to a larger series of vibration rates. These facts point out a still finer specialization of function, and also indicate that while the quality of the sensation depends largely upon the sensory centre stimulated, there is a corollation between the quality of the sensations and that of the external stimuli.

nature of the case to some part of the bodily organism. Naturally these sensations tend to become associated one with another, and gradually the sense of an individual organism is developed. This complex of organic sensations forms the basis of our physical personality. As some complex of organic and muscular sensations is always present, gradually all our experiences, all our thought and feelings become associated with the conscious physical personality, and we come to realize that there is a distinct I, a discreet personality, entirely apart from all the other individuals in the world. The consciousness of our *personal* identity, our ego, is then complete.[1]

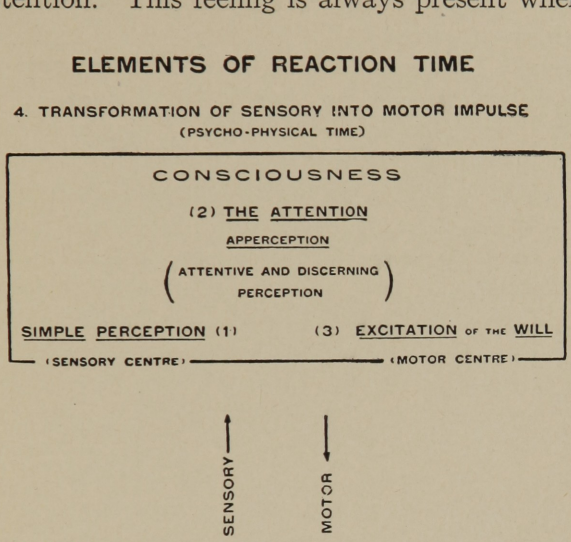
CHAPTER VII

Motor Projection Field

Our study so far has shown us two phases of mentality: (1) sensation, which is the source of all perception and all feeling; and (2) appreciation, which is the complex activity among these sensations and their resultant ideas feelings, and emotions.

[1] The development of the personality is extremely interesting. The child at first is unconscious of its existence, of its own individuality. "Jonnie wants it," "Mamie wants it." The ego, or I, is not present. The child inspects its fingers and toes as it does that which is held before it, as something foreign to itself. Later, the muscular and organic sensations proceeding from all parts of the body are recognized and the personality is gradually formed. It develops in the child at two and a half to three years of age.

In the further survey of the human mind we also observed a feeling of effort or of voluntary attention. This feeling is always present when-



Courtesy Dr. Edward Cowles, Harvard Medical School.

FIG. 12.—This diagram represents the mechanism of the reflex arc. Following the analysis of Exner, reaction time includes seven elements, beginning with (1) an action of the stimulus on the end-organ of sense preparatory to excitation of the sensory nerve, and ending with (7) the setting free of muscular motion. The fourth or "transformation" process, when it occurs in consciousness, is described by Wundt as consisting of three processes, following the analogy of the field of vision: (1) entrance into the visual *field* of consciousness, or simple perception; (2) entrance into the *point* of clear vision with attention or apperception (attentive and discerning perception); (3) the excitation of the will, which sets free in the central organ the motor impulse. (Ladd. Phys. Psychology.)

ever we try to exclude from consciousness all sense impressions and ideas which are not related to one central idea, which is for the time most interesting and important.

We will now investigate, as far as possible, this feeling of effort. To do so, it seems necessary to make a brief review of the entire motorium or bodily movements.

Bodily Movements.—A complete survey of bodily movements involves notice of the sensorimotor mechanism. The bodily organism serves both for the reception of sense impressions through its sense organs, and for the communication of motion to the external world. It is, therefore, not only a sensory mechanism, but a motor mechanism as well. As we have already seen, the sense organs, the sensory or afferent nerves and sensory centres in the brain, or other centres in the nervous system, form the sensory mechanism for conveying impressions inward from the external world. While, on the other hand, the nerves of motion, or motor nerves, are fibres running from the brain and other centres to the muscles, in which they terminate and serve to stimulate to action the contractile energy stored up in them. This latter combination forms the motor mechanism. The motor mechanism thus forms a medium for reaction upon the outer world in coördination with the sensory mechanism for receiving sensations from without. The two form together *the sensorimotor mechanism* (*cf.* p. 41).

All the bodily movements may be grouped into two classes: (*a*) involuntary action and (*b*) voluntary action.

Involuntary Action..—Every sensation, every thought tends to initiate some bodily movement.

Those sensations and ideas which do not occupy the centre of consciousness; in other words, those sensations and ideas that are not attended to, that are not apperceived, result in a movement, unless impeded, of which we may or may not be conscious. These activities are called involuntary movements.

Involuntary action may be grouped in two classes: (1) reflex action, which is the result of peripheral stimulation; and (2) automatic action, which is the result of central stimulation.

Reflex Action.—For a reflex act a sense organ must be stimulated. The excitation is then transmitted by the sensory nerves to the sensory centres in the cord, medulla, or sometimes in the brain; from these centres it is passed on to the motor centres, and from these travels by way of the efferent nerve to the motor organs in the muscles, producing finally a muscular movement. Such movements, though unintentional, may or may not be accompanied by consciousness. The contraction of the muscle fibres of the iris in response to a light stimulus is always unconscious; while the movements to focus the eyes on a special object may or may not be conscious.

Automatic action is subdivided, also, into two groups, according to their development: (*a*) those which have developed from reflex acts in the course of long ages and many generations (instinctive); (*b*) those which are the products of voluntary acts during the life of a single individual (acquired).

(*a*) Instinctive action: Instinctive action is that form of involuntary action that is known as instinct. It is action to which the individual is compelled by some impulse derived from his natural constitution, without knowing the cause or the purpose of the action. Such actions, although they do not originate from any conscious purpose, have an end; which is the conservation either of the individual or of the species to which he belongs. Example, the sucking of a new-born infant.

(*b*) Habit or acquired action: It is that form of involuntary action known as *habit.* It consists in a disposition to repeat an action whenever favorable circumstances are afforded. Thus any particular movement of any bodily member repeated many times becomes a habit. A particular activity of any physical power also tends to become a habit. Man is sometimes described as a "bundle of habits." Habits originate either from external circumstances or from acts of the will. Many habits are induced by recurrences in our experience to which we give but little attention. We adapt ourselves to our surroundings, and habits are spontaneously formed. Other habits originate from a specific act, or series of acts of the will. This is the origin of most of our complex habits, such as reading, writing, playing on musical instruments, etc., which require repeated and attentive mental direction in order to establish them. Nine-tenths of our actions are done under the force of habit.

Voluntary Action or Volition.—Those ideas to which we give maximum attention, those which are apperceived, also result in action; but we are then conscious of the nature of the activity before it is performed. This action is called voluntary.

Voluntary acts are of two kinds:

(*a*) Simple volition or impulse. If only one idea predominates, and it absorbs the whole attention, the act follows without any conscious effort.

(*b*) A complex volition, involving decision or choice. If several ideas are pressing for recognition and the attention is held down to one of them, the action follows just as surely, but it seems to be the result of voluntary effort. Moreover, the actions which might have followed the other ideas are impeded or inhibited.

The capacity for voluntary activity, the power of the will, is the ability to attend to a given subject in spite of distraction. The act of the will, therefore, consists in concentrating the attention.

We learned in a previous chapter that to be easily remembered an idea must be associated with many others. In like manner to be attended to an idea must also be associated with many other ideas. As the mind is never at rest, it cannot dwell on one isolated idea. If an idea which reaches the focus of attention has the power to recall many related ideas the attention will be held; if not, it will wander immediately.

That a clear idea of the action to be made is a necessary preliminary to a voluntary act is indicated by the following facts:

1. That we cannot through any amount of effort control unaccustomed movements, such as those required in skating, riding a bicycle, etc.

2. That the only method of dismissing painful thoughts from one's mind is by concentrating the attention on some other thought.

3. That one has no prolonged power over one's involuntary muscles.

Conclusions.—This analysis leads us to two conclusions—that the act of will is in reality a concentration of attention, and that the act of concentration is the result of the various apperceptive processes.

We have now finished our investigation of all the phenomena which we discovered in our introspective view of a moment of consciousness,—impressions of the external world, memories, ideas, and feelings of pleasure or pain and effort. As a result of the investigation, we find that it is possible to refer all these phenomena, which are representative of all possible mental phenomena, to three fundamental processes—sensation, reproductive memory, and apperception.

CHAPTER VIII

Complexes; Dreams; Autistic Thinking

Complexes.—While the stream of consciousness is an onflowing one, our ideas are separated into independent currents which pursue their individual course. The active principle is feeling. In

this way all of our thoughts are grouped into distinct classes and each new experience falls into the class to which it is related. Thus all of our interests are systems of emotionally toned ideas with a tendency to produce actions of a certain definite character. Such a system of connected ideas is termed in technical language a "complex." One's hobby, for instance, is to be regarded as a particular variety of complex. Let us suppose that I am an enthusiastic photographer. It is obvious that the influence of this hobby will continually affect the flow of my consciousness. Scenes which would otherwise be indifferent to me will frequently arouse interest as possible material for a picture; in my reading, also, an article on photography will at once arrest attention; and in conversation with friends an added zest will be excited when the subject turns to my favorite pastime. In this way we form our religious complex; our political or party complex; our business, family, and recreation complexes. Each interest is built into its own compartment, cemented, as before said, by feeling.

Complexes may be of all sorts and kinds, the component ideas may be of every variety, the emotional tone pleasant or painful, very intense or comparatively weak. Consider, for example, the immensely powerful complex formed in the young man who has recently fallen in love. All his mental energy is absorbed in the beloved one and he cannot direct his mind to the business of the day. In short, the whole universe

is for him nothing but a setting for his dominating complex.

Complexes, then, are the incentives that determine the activity of consciousness. Ideas which are in harmony with the complex are reinforced, whereas those not so in harmony tend to be inhibited and to lose their cogency. This orderly arrangement of ideas upon a background of feeling, which serves to unite them, is what gives character and individuality to the personality. The specific purpose to create the proper feeling-tone about things and events is one of the chief functions of education.

It so happens that in certain types of persons a complex of ideas, grouped about a central event which conditions a highly painful emotional state, is crowded out of the conscious stream—repressed—into the region of the subconscious. This submerged complex tends to lead an existence which is relatively independent, and in so doing gives origin to various morbid symptoms. Such a complex is known as a "dissociated state," which gives rise to a series of psychopathic symptoms, found in subjects of "double" personality.

Dreams.—The subject of dreams is now becoming of much importance in the study of mind. Since no mental state can be haphazard in origin, since the content of consciousness at any one time must be causally dependent upon what has preceded, a study of the dream state is found to throw light upon the mental make-up of the dreamer.

Dreams have been shown to be closely related to delusions and to other psychoneurotic symptoms. Hence the analysis of dreams under these conditions is important for the interpretation of these symptoms.

The suppressed complexes of dissociated states, spoken of in the paragraph on complexes, have been found to have a strong inclination to slip out of their enforced retirement. According to recent authors, dreams have a conserving function upon sleep by their protecting control over these complexes.

Autistic Thinking.—Autistic thinking has received attention as the result of a new method of studying the thoughts of the insane by comparing the flights of fancy of the alienated person, who sees life in fantastic pictures, with ordinary day-dreaming among normal people, where thought is divorced both from logic and from reality. It is an interesting and suggestive field of study.

Psychology, until recent years, had only studied the laws of logical thinking. To-day science directs attention to the laws of illogical thinking. One of these latter forms is autistic thinking, which needs for its interpretation a knowledge of the laws upon which it is based. These throw light upon the inner life of the individual, upon the influence of passive imagination (fancy), as exhibited by the child mind and the mind of primitive man, who evolved the various systems of myth and the multivarious symbolism of mythology and ancient superstition.

A good deal of the silent and secret thinking of the normal man is of the fairy-tale variety. He does not believe in the reality of his day-dreaming, but he derives comfort and consolation from "castle-building," when his hopes and aspirations have full sway. On the other hand, the insane man believes in the reality of his day-dreams. He does not tell a fairy-tale, he does not read one, but he *lives* his fairy-tale.

Professor Bleuler, of Zürich, a chief exponent of autistic thinking, illustrates the subject by describing one of his patients. This man, an ill-favored, insignificant creature, who had never known any but the most miserable surroundings, enters a room in a country inn, goes to bed and can only be removed by force, for he expects the Queen of Holland, who wishes to marry him, to arrive at any moment.

The thinking of this patient, which represents a very common type among the insane, is, of course, sheer nonsense. He imagines something absolutely impossible, and, what is worse, he believes it to be reality.

Each of us, says Professor Bleuler, has also his fairy-tale. He does not usually believe himself to live it; only when quite alone and his thoughts let loose, does it come to light. He always chooses those advantages in which he is most lacking. The process is similar to the "make-believe" life of the child at play with his toys. Directly reality regains its sway, the plaything will be thrust back into the closet (in the brain), where it is hidden,

not only from the stranger, but, for the time, from the owner himself.

Bleuler further traces the similarity of our secret thinking to the autistic fancy of the insane. Through the partly closed door of the closet an arm or head of the fairy may easily protrude. A glimpse of the make-believe fairy is seen in the color of the necktie (if I be a young man) that I select, in the extra strut as I pass an attractive girl on the street, or alight from my motor at the hotel entrance. When I address an audience (if I be a civic reformer), receive an appointment to office, in short, whenever my aspirations are touched or my hopes favored, then the little toy imp is seen peering over my shoulder.

Amplification of this fascinating subject promises rich reward.

PART THREE

CHAPTER IX

Insanity

Insanity is defined as "a prolonged departure from the individual's normal standard of thinking, feeling, and acting, the result of disease or degeneration."

It may properly be considered "*a prolonged departure*," because there are many conditions in which there are *temporary* departures from the normal standard of thinking, feeling, and acting which are not called insanity. Thus, in intoxication, one neither thinks, feels, nor acts as when sober, but this condition is not accounted insanity, and the individual is fully responsible in the eye of the law for his conduct if he has voluntarily partaken of the intoxicating substance. In the delirium of fever, due to overheating of the blood, its too rapid circulation, and its conveying deleterious or poisonous substances to the brain, the individual is temporarily deprived of his ability to think, feel, and act normally. It is true of shock, a blow on the head, fright, epileptic convulsions, fainting from loss of blood (or heart failure), and apoplexy that there may be temporary loss of consciousness and the

mind fail to act normally, but the person thus affected is not regarded insane. Insanity may develop in consequence of injury, the delirium of fever, loss of blood, apoplexy or epilepsy, but the condition itself is not an insane condition.

The definition speaks of the *individual's* normal standard. This means that every case is a law unto itself; that there is no fixed standard of thinking, feeling, and acting. It cannot be said, for example, because one does not act under certain conditions as his neighbor acts, because he does not show the same amount of feeling that his neighbor shows, that he is insane and the other sane.

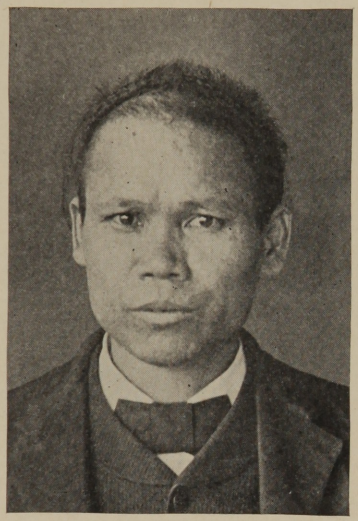


FIG. 13.—Thinking, feeling, and acting are generally indicated by bodily movement, facial expression, and speech. In the case of an insane Chinaman, whose language is not understood, we are deprived of one of the ways of learning his state of mind.

In giving an opinion as to whether insanity exists, it is necessary to compare the person's present with his former habits of thinking, feeling, and acting.

Causes of Mental Disorders.—"On studying closely the causes of mental diseases," says

Griesinger, "one soon recognizes the fact that in the great majority of cases the disease is produced, not by a particular or specific cause, but by a series of unfavorable conditions which first prepare the soil, and then, by their simultaneous action, determine the outbreak of insanity."

We find that the causes may be divided into two groups, (1) the *predisposing causes*, and the (2) *exciting causes*. The predisposing or remote causes are made up of those conditions existing within the individual, or acquired by him, which render him liable to the development of mental breakdown under favoring circumstances. The exciting or immediate causes are those circumstances or conditions which produce the actual attack, operating usually upon a predisposed soil. The predisposing causes may be likened to a train of gunpowder, the exciting causes to the match that fires it (White).

Thus, in every case of insanity we have a predisposing and an exciting cause. Example, debilitating influence of exhausting disease (tuberculosis) as the predisposing cause, and the exciting cause by systematic poisoning by alcohol.

Predisposing Causes.—*Inherited Predisposition* (Heredity).—This undoubtedly is the most potent and important of all the causes of insanity.

Heredity may be defined as a predisposition transmitted to children from their parents (Fig. 14).

The source of this predisposition may be not merely mental alienation in the ancestors, but

also in other related conditions, as eccentricity, neuroses, alcoholism, etc. In one so predisposed, it is often found that his constitution is unequal to the task of carrying him through certain inevitable periods of his development. Usually one of the parents or a near relative has been nervous or actually insane; some ancestor may have been of vicious habits, intemperate, scrofulous, or consumptive, syphilitic, etc., and the insane constitution entailed in the children. The known hereditary tendency to mental disease, either immediate or remote, is about 50 per cent. in all cases under treatment in any institution for the insane; some authors place it higher and some below this estimate.

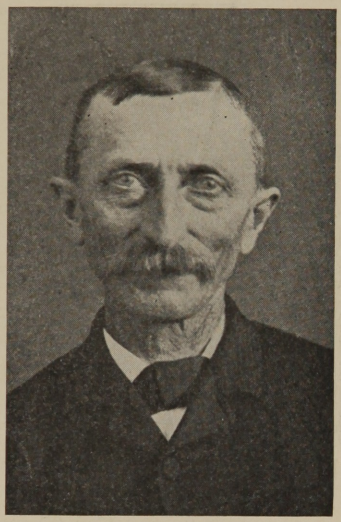


FIG. 14.—A case of inherited predisposition.

Heredity is either direct or collateral, according as it is observed in parents or grandparents, or in collateral branches of the family.

It may be from one parent, either father or mother, and then it is paternal or maternal, as the case may be.

Acquired Predisposition.—Any prolonged toxic-exhaustive condition may by acting upon the normal brain bring about such changes as to lower its resistance to disease and thus predispose the individual to the development of mental ailment. The most important agents in bringing about an acquired predisposition are alcohol, syphilis, and tuberculosis.

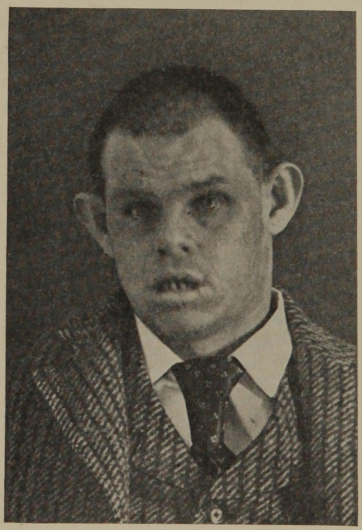


FIG. 15.—Arrested mental development in infancy.

Age is another important predisposing factor in producing insanity. Certain periods of life are productive of distinct forms of the disease.

Life may be divided into the following epochs: (*a*) childhood; (*b*) puberty; (*c*) adolescence; (*d*) maturity; (*e*) climacteric; (*f*) senility.

The three first are the stages of development, the two next are stationary periods, and the last is the stage or period of decline.

(*a*) Childhood. This is preëminently the formation period, both mentally and physically. Any considerable arrest of mental development

leads to more or less enfeeblement of mind, eventuating according to the degree in idiocy or imbecility (Fig. 15).

(*b*) Puberty. This is the period of development during which the boy or girl passes into manhood or womanhood. Puberty occurs between the ages of twelve and sixteen years. At this stage the reproductive organs take on development, and a change, both mental and physical, takes place in the disposition and character of the child.

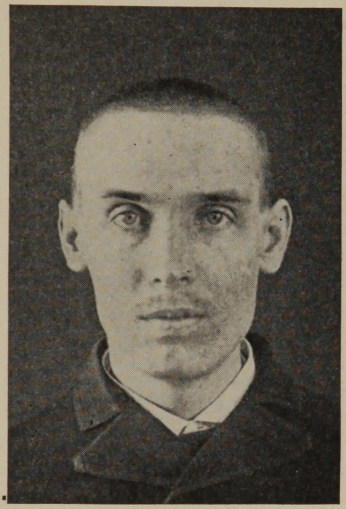


FIG. 16.—Psychosis of adolescence in a young man.

It is a critical time in the life of the young, and unless he or she is well organized, mental overthrow may occur. Some forms of mental disease may develop at this stage of life. The age at which puberty is established varies in different climates. In this latitude it approximately appears between the ages of twelve and fourteen years in the female and between fourteen and sixteen in the male.

(*c*) Adolescence. Adolescence is the period between puberty and maturity. In the male it

extends from the sixteenth to the twenty-fifth year of age and in the female from the fourteenth to the twenty-first year (Fig. 16).

If the youth has passed safely the pubescent period, having inherited sufficient nervous vigor to carry him beyond the first physiological crisis, he may still break down at this, the next development period, without direct assignable cause, or for some cause which would not be sufficient in one well constituted.

FIG. 17.—A common type of climacteric psychosis (Berkley's Treatise of Mental Disorders—D. Appleton & Co.).

(*d*) Maturity. This comprises the period between full mental development and the decline of life. As it is the longest period, embracing as it does the most active physical and mental operations of life, it necessarily calls for all of the powers of endurance of the individual.

(*e*) Climacteric. The climacteric period marks the so-called change of life (Fig. 17). It is the beginning of the dissolutional period or that of physical decay. The periods of development and active life are past and those organs which took on activity at the time of puberty begin to cease

active functionating. Mentally, however, the epoch is a stationary one. In woman, it occurs usually at the forty-fifth year, involving a period more or less prolonged of inconvenience and discomfort.

(*f*) Senility. This is the next and last period. It arrives about fifteen years after the climacteric —in women at sixty, and in men at seventy years; the well-known signs of age make their appearance (Fig. 18).

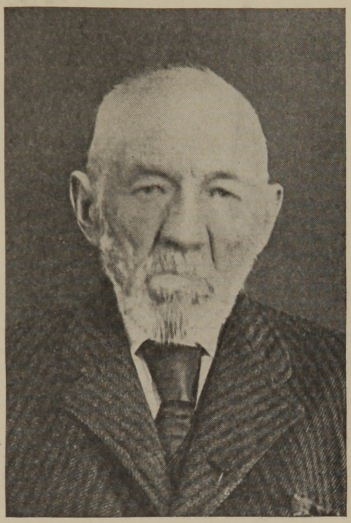


FIG. 18.—Senile psychosis in an aged man eighty years old.

Sex.—Sex plays a certain part in the causation of mental disease, as the stresses vary in man and woman. Males suffer chiefly from excesses, whereas the stress in the case of woman is largely connected with the reproductive functions, childbirth, lactation, and pregnancy. On the whole, the predisposition is about equally divided between the two sexes, with a slight excess in women.

Occupation.—Certain occupations favor the occurrence of insanity more than others. Such are those which involve exposure to toxic agents, or

special temptations to vicious habits; those that acquire irregular or unnatural habits of life. Again, occupations requiring great mental strain, entailing responsibility or productive of excitement and uncertainty, may favor insanity. Occupation has a direct influence, either by the immediate effect upon the mind, or indirectly by its effect on the general health of the individual.

Civil Condition.—It is generally recognized that marriage is conducive to sanity. The causes of this are doubtless to be found in the more natural and healthful life of the married than in the unmarried; the lesser temptations to immorality, and, in the female at least, the natural fulfilment of her physiologic destiny.

Civilization.—Insanity is distinctly a factor of civilized life. It is most prevalent in highly cultivated communities, in the centres where civilization has reached its greatest development. As one author says, the struggle for existence, in the process of evolution, has changed from a physical to a mental strife. The seat of the contest is shifted from the hardy muscle to the delicate structure of the brain. In other words, the stresses of life become more and more mental rather than physical.

Exciting Causes.—From what has been said, it will be understood that with an existing predisposition, almost anything that could sufficiently disturb the normal healthy action of the brain may give rise to mental derangement. The exciting causes which may determine the attack

are, therefore, innumerable, and it is possible only to refer here to the most frequent (Fig. 19). They are divided into two groups—physical and mental.

Physical are those causes which affect mental operations by direct action upon the brain, as head injuries, nervous shock, sunstroke, tumors of the brain, apoplexy, softening of the brain, etc.; indirectly, as consumption, heart disease, Bright's disease, cancer, typhoid fever, lead poisoning, etc.; also vicious habits, as intemperance, opium, alcohol, and cocaine habits; in short, excesses of all kinds and all habits that directly or indirectly undermine the general health.

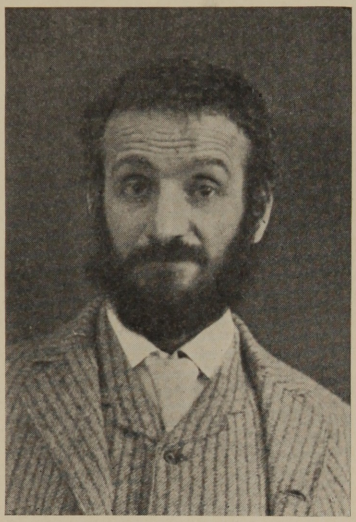


FIG. 19.—If the predisposition is strong it only needs, to bring on an attack, a slight exciting cause. In this case it was a loss in the sale of a ten-dollar coat.

Mental causes comprise bereavement, fright, care and anxiety, business trouble, disappointment, excessive anger, excessive joy, trouble, and disappointment of all kinds. Some of these act directly in causing insanity by producing a profound impression upon or shock to the mind;

while others act more slowly and indirectly by undermining the general health. The merchant who has failed in business, for example, loses sleep over it and he, also, does not take the proper amount of exercise and food. This bad state of affairs goes on until his bodily functions become disordered, he breaks down in health, and finally insanity develops.

CHAPTER X

General Symptomatology

A. DISORDERS OF THE PROCESS OF PERCEPTION

The senses, as already stated, are the means through which we obtain a knowledge of the external world, as well as of our own bodies. There are two classes of sensations—those aroused through stimulation of the organs of special sense by external stimuli and those aroused by bodily and organic movements. The proper exercise of this function depends on: (1) the reception of the external or the internal impression by a peripheral organ; (2) the transmission of the impression to the brain; and (3) the elaboration of this stimulation by the central nervous system.

The psychosensory disorders may be divided into three divisions: insufficiency of perception; illusions (inaccurate perceptions); and hallucinations (imaginary perceptions).

Insufficiency of Perception.—Insufficiency of perception in its mildest form may be found in

states of depression, at the onset of mental confusion, and in like conditions. All external impressions are vague, uncertain, and strange. The patients complain that everything has changed in them and around them; objects and persons have not their usual aspect; the sound of their own voices startles them.

In a more marked degree of insufficiency, external impressions no longer convey to the mind of the subject any clear or definite idea. Questions are either not understood at all, or understood only when they are simple, brief, energetically put, and repeated several times.

The pathogenesis of insufficiency is closely connected with disorders of ideation. The normal act of perception, as we have seen under mental processes, consists of two elements: a sensory impression combining with memories of past experience; hence, if the associations of ideas are not formed in sufficient numbers the perception can only be vague and ill-defined.

Illusions.—An illusion may be defined as a false perception with an external object. Examples: One looking upon a carpet with bright figures and irregular tracings, sees in the bright figures birds of brilliant plumage, and in the tracings of duller colors, snakes and rats. Objects in a graveyard mistaken for persons and ghosts.

Illusions are of frequent occurrence in normal individuals. Aided by the testimony of the other senses, the normal mind recognizes the abnormal character of the impression; the illu-

sion is accounted for and corrected. By the insane, on the contrary, the false perception is not corrected and it exercises an influence upon mental content.

Illusions affect all the senses and present in the case of each, features analogous to those of hallucinations. Illusions of sight, which present certain peculiarities, may occur in most of the psychoses, but are chiefly found in the toxic psychoses and in the infectious deliria. When these illusions pertain to persons they lead to mistakes of identity. Many insane persons recognize in their fellow patients or among the nurses their relatives or old friends.

Hallucinations.—An hallucination may be defined as a false perception without an external object. The distinguishing feature, then, is a perception without there being anything in the environment to perceive. Examples: Hearing voices, seeing persons or objects, perceiving noxious and unpleasant odors, without material substances to call them forth.

Hallucinations may affect any of the senses. Some properties are common to all varieties of hallucinations, others are peculiar to each variety. They exercise an influence upon the personality of the patient, which varies with the individual, the nature of the disease, and the different stages of the same disease.

In a general way it may be said that the more acute the character of the mental disorder (acute psychoses, periods of exacerbation in chronic

psychoses) and the less enfeebled the intellectual activity, the more marked is the influence of the hallucinations. As clinically demonstrated, hallucinations abate in their influence as the stage of the mental disease subsides—either when the patient enters upon convalescence or when he lapses into dementia. In the latter case even if they persist they exercise but little sway over the emotions and actions of the patient.

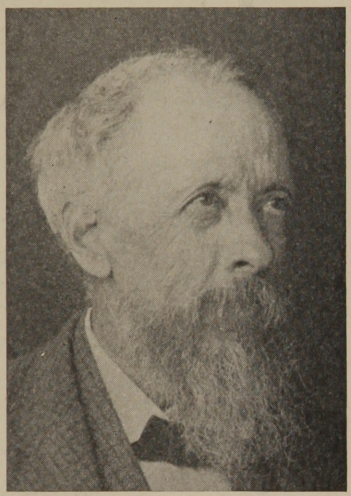


FIG. 20.—A type exhibiting hallucinations of hearing.

Hallucinations of Hearing.—These are the most common variety. In explanation, the patient is apt to call them internal "voices," alleging that they are conveyed within him by telegraph, telephone, phonograph, or more ambiguously by some system of electricity, or otherwise by some occult power (Fig. 20). In degree they may be gentle, when the patient hears his own thoughts, or so pronounced as to draw him into conversation. Again, the sound may not seem to extend beyond the patient's own body, but is referred to some part of it, as, for instance, believing

that there is a child in his throat speaking to him. These false voices may seem to the patient to speak in a whispering tone from a distance, or very near at hand, or they may shout loudly, as coming from the floor above, or beneath the individual. It is often a peculiar idea among the insane with auditory hallucinations that others read their thoughts and in this manner take undue advantage of them, even holding them up to ridicule, a condition that often leads to violence. These false voices may be pleasant in character, where sweet strains of music are heard, but usually they are disagreeable and distressing. They are apt to excite the patient to violence when they take the form of reproaches, insults, and ironical remarks. They may be recognized as some known person, or merely spoken of as "voices." Their threats compel him to flee, their commands lead him to murder or to senseless and unnatural acts, especially when ascribed to the higher powers.

Hallucinations of sight occur more frequently in the acute psychoses. They are cheerful or depressed in character, according to the form of mental ailment. An angel may appear to the patient, offering him the appointment of "the messenger of God." He may promise him future greatness, direct him so as to secure his rights, etc. On the other hand, the hallucinations may consist of appalling spectacles, as the massacre of the patient's best friends, whose blood is mingled with the food that is offered him.

Hallucinations of smell are usually disagreeable in character. The smell of various gases, as sulphur, and that of dead bodies, is often mentioned. Delusions of poisoning and consequent refusal of food often result. This fear sometimes leads these patients to close their nostrils and ears with bits of rags or paper, and also the keyholes and transoms of their rooms.

Hallucinations of taste are also generally disagreeable and are closely associated with those of smell. They are attributed to admixtures with food.

Hallucinations of touch are numerous and varying, and generally depend upon changes in self-consciousness. Pricking, burning, tearing of the flesh are often spoken of. Loss of sensation may also occur.

Hallucinations and illusions of the muscular sense occasionally occur. The weight of bedclothes may give the impression through the muscular sense of a heavy load (illusion); or one may fancy himself exerting great muscular strength; may even perspire and become manifestly exhausted through efforts to sustain bodies, which are burdening him, while in fact he is entirely free from weight or pressure.

Hallucinations of hearing and sight never occur in patients who are congenitally deaf and blind. Only deaf and blind people, therefore, who have acquired their infirmity long after birth can have hallucinations of sight and hearing. When the brain centres, which preside over these senses in

health, have never been in action, it is impossible for any true conception of sound to exist, as in one born deaf, or of color and form, as in one totally blind from birth. There could be no better evidence of the fact that we hear and see with the brain. the mind, and not with the ears and eyes.

Various modifications of hallucinations may exist. It is not unusual to find hallucinations of two or more senses existing together in a patient, but disturbance of all the senses at once is very rare. The whole nervous system may be in such a state of morbid excitement that derangement may be exhibited in delusions and hallucinations at the same time.

Color hearing (sound photisms) is a peculiar modification of sensation. This consists of a power certain individuals have of receiving a sensation of color at the same time as a sensation of hearing when sound strikes the ear. High notes generally produce in them sensations of brilliant colors, while low notes those of dark colors. The colored image is seen as belonging to the person or instrument producing the sound. In some rare cases may be found the opposite phenomenon (light phonisms), a sound being heard when the eye is struck by a color.

Clouding of Consciousness.—External stimuli occasion within us characteristic mental phenomena which we immediately apprehend and distinguish as perceptions, feelings, etc. This experience is designated consciousness. Every

stimulus which crosses the threshold of consciousness, *i.e.*, comes into the field of clear consciousness, thereby arousing a psychic process, must possess a certain intensity which cannot sink below a definite limit. This limit is called the "threshold value," and it varies greatly according to the condition of the mind. Just as the transition of the external stimuli into sensory excitations depends on the sense organ, so the state of the cerebral cortex is the factor in changing the physiological into a conscious process.

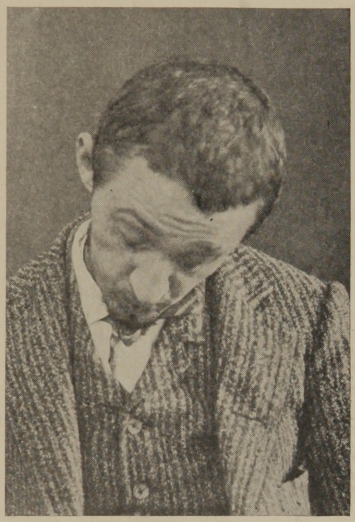


FIG. 21.—Clouding of consciousness is prevalent in cases of confusion and stupor.

Clouding of consciousness is determined by putting to the patient a series of questions concerning his age, his occupation, the date, the surroundings, and the persons about him.

If consciousness is completely suspended, the condition is designated unconsciousness. If clearness of consciousness is weakened, then we have more or less befogging of the mind. These befogged states occur in many forms of mental

trouble in varying degree. It is seen in fatigue, in transition to sleep by hypnotics, in delirium of fever, intoxication, epilepsy, and collapse (Fig. 21).

CHAPTER XI

B. DISTURBANCES OF MENTAL ELABORATION.

Impairment of Memory.—All higher mental activity depends largely on memory. Every impression which has once entered consciousness leaves behind it a gradually "fading disposition" to its recall. This disposition to recall is identical with the residuum which each new perception contributes to the store of experience and to the store of memory. The residuum is strong and permanent in proportion to the clearness of the original impression and to the number of its relations to other mental processes, *i.e.*, to the interest it arouses (emotional tone) and the frequency of its repetition. The vast majority of our ideas and the great part of the association complexes with which we have to do daily are so accessible to us that they appear under the least provocation and without effort.

Memory includes several varieties: A ready memory is when the subject recalls promptly, is quick to learn, but usually does not retain impressions long; while one with a tenacious memory recalls less promptly, learns with more difficulty, but does not easily forget. Memory also depends upon the attention given to events—

things that excite but small interest are soon forgotten. There may be individual peculiarities of memory by which certain kinds of impressions are surprisingly recalled, as memory for dates, numbers, music, etc. These variations generally occur in abnormal persons. Examples, Blind Tom and other "idiots-savants."

Amnesia is the term used to designate loss of memory. In impairment of memory the impressions of recent events and proper names are lost first; later the memories of early life; and finally the memory of mechanical movements necessary to the daily wants is lost or impaired

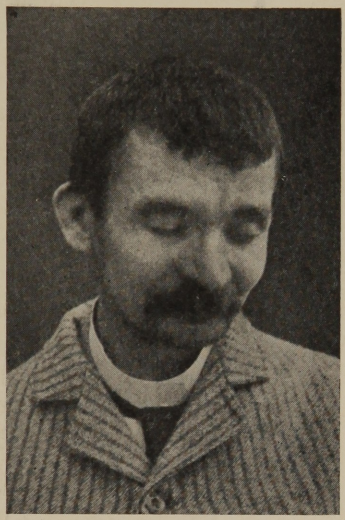


FIG. 22.—A case of impaired power to recognize time, space, and personal identity; disorientation.

As memory greatly depends upon attention, melancholy patients only notice and recall sombre impressions and neglect cheerful ones, while the reverse is characteristic of exalted patients.

Disorientation.—Normal orientation is the power to recognize one's surroundings. It implies integrity of the following three elements which

comprise one's apprehension of his environment: (1) the notion of his own personality; (2) the notion of the external world (space); and (3) the notion of time.

These three notions through mental disorder may disappear together or singly. In certain affections the orientation of time and place is lost, while that of personal identity remains intact. Disorientation is always coupled with clouding of consciousness (Fig. 22).

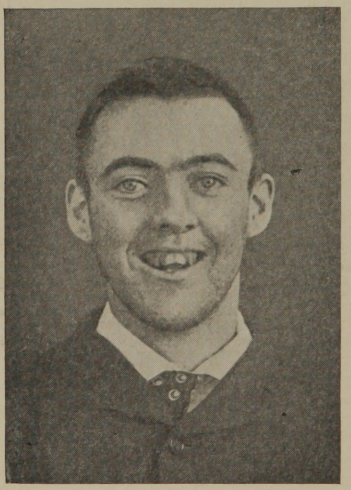


FIG. 23.—An imbecile unable to develop general ideas.

To ascertain the patient's degree of orientation as to personality, ask: What is your name? How old are you? What is your occupation? As to time ask: What year is it now? What time of the year is it and the month? Do you know the date and day of the month? As to location and surroundings, ask: Where are we now? What sort of people live here? Who do you know here and what do you know about them? (Fuhrmann.)

Disturbances of the Formation of General Ideas and Concepts.—Lack of permanence of sensory

impressions and imperfect assimilation always interfere with the formation of ideas and concepts. This is illustrated in imbeciles (Fig. 23).

In morbid conditions, especially in congenital imbecility, this development may stop at any point. These patients are unable to carry concrete notions into general ideas, which not only prevents the development of thought but also retards the assimilation of new material in experience. Similarly in paresis, dementia præcox, and senile dementia, the circle of new ideas narrows, new impressions are no longer elaborated, and general ideas and concepts are gradually replaced by the specific, the immediate, and the tangible.

Disturbance of the Train of Thought.—In the waking state our perceptions and ideas are never at rest, but succeed each other in a continuous succession. This mental activity is called the train of thought (see Complexes, p. 46).

Paralysis of Thought.—Paralysis of thought, the simplest form of the disturbance of the train of thought, is characterized by a complete absence of all associations. It occurs in a moderate degree in fatigue. Narcotic poisoning is a graver form. It is a fundamental symptom in the insanities accompanied by deterioration.

Retardation of Thought.—Retardation of thought is manifested by difficulty in the elaboration of external impressions; the train of thought is sensibly retarded and the control of the store of ideas is incomplete (Fig. 24).

Compulsive Ideas.—Compulsive ideas arise in the train of thought where unconnected thoughts irresistibly force themselves into consciousness. These are usually accompanied by a disagreeable feeling of subjection to some overwhelming external compulsion. The mere fear of their occurrence is often sufficient to make them active.

FIG. 24.—Retardation of thought found in melancholic and stuporous cases.

There is another group of cases in which some simple common idea takes ascendency and gives mastery over the train of thought, such as the compulsion to recall a certain name or number, and the compulsion to ask one's self all sorts of questions.

Flight of Ideas.—In the normal process of thinking, our thoughts are directed and held true by a guiding idea—the *goal* idea—and all other ideas fall into a subordinate position until this is attained.

In the flight of ideas the patient either has no guiding idea or else at once loses it, so that there is no consistent effort directed toward attaining

the goal idea, and the thought therefore wanders here and there under the influence of external or internal chance associations.

Example: "I was looking at you, the sweet boy, that does not want sweet soap. You always work Harvard for the hardware store. Neatness of feet don't win feet, but feet win the neatness of men. Run don't run west, but west runs east. I like west strawberries best. Rebels don't shoot devils at night." (Diefendorf.)

FIG. 25.—Flight of ideas: the delirious form (Chapin: Mental Diseases—W. B. Saunders Co.).

There are two varieties recognized, the delirious form (Fig. 25), occurring in the acute psychoses, and the rambling form (Fig. 26) in the chronic.

Disturbances of Reasoning and Judgment.—*Delusions.*—A delusion is a morbidly falsified belief which cannot be corrected either by argument or experience. The definition limits the false belief to one morbidly acquired, because

there are many erroneous beliefs not due to disease, but rather to faulty education, as the belief in witchcraft, satanic possession, the evil eye, visitation of ghosts, and so on. In estimating the importance of a false belief as evidence of insanity, it is necessary to take into consideration the patient's habits of thought, previous education, and mode of life. A college graduate suddenly expressing a belief in witches could justly be regarded as having an insane delusion. On the other hand, it would not be safe to infer that such a belief was conclusive of insanity in a plantation negro.

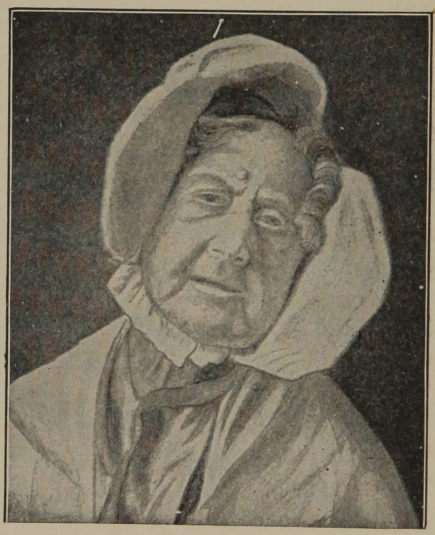


FIG. 26.—Flight of ideas: the rambling form (Chapin: Mental Diseases—W. B. Saunders Co.).

Errors of normal persons may be rectified, but inability to correct false conclusions constitutes an element of insanity. This applies not alone to reasoning and its product, judgment, but illusions and hallucinations believed in, and accepted as facts, become delusions.

The kinds of delusions are as numerous and varied as the ideas of man. For instance, imaginary diseases of various parts of the body; headaches may lead to the belief that the brain is dried up and that it has been removed and replaced by putty; that the stomach is filled with glass; that food is retained in the body; that the œsophagus is closed and the patient cannot swallow or cannot speak. Again, the patient may believe that he is bewitched or controlled by magnetism, or may have other ideas of persecution; that gestures and remarks of other persons apply to himself and mean some harm to him. He may imagine that he has committed some great sin, accuses himself of crime, and accordingly will be punished in some cruel manner. He may have exaggerated notions of wealth and prowess; that he has clothing of gold, etc.; or that he is a person of great importance, such as king, poet, statesman, or even the Almighty. In each assumption he carries out the conception that he has formed by appropriate speech, bearing, and action (see Autistic Thinking, p. 49).

Delusions are grouped as to *Variety:*

1. They may be possible but are improbable; such as, a king believing that he is poor.

2. They are impossible; an example, that the brain is turned into putty.

3. They relate to what may happen; for instance, that he may be president; that he may be burned alive.

As to *Character,* delusions may be transient, fixed, and systematized.

1. Transient, when they are of short duration, frequently changing, one giving place to another.

2. Fixed, when they are retained for long periods, seldom supplanted by new, usually few in number.

3. Systematized, when they are arrived at through a process of reasoning; are fixed and logical. As an example, a man believes that he has inherited a sum of money, that he is not able to obtain it because some one is interfering with his rights. He fixes upon his supposed enemy and threatens or attempts to assault him. He is arrested, placed in an institution, where the physicians are conceived by him to be in league with his former persecutor. Finally, to put him out of the way, a system of slow poisoning by gases, electricity, or by placing poison in his food is carried on by the nurses, at the instigation of the hospital authorities. All unusual and even ordinary routine affairs are interpreted as bearing some important relation to his delusional train of thought (Fig. 27).

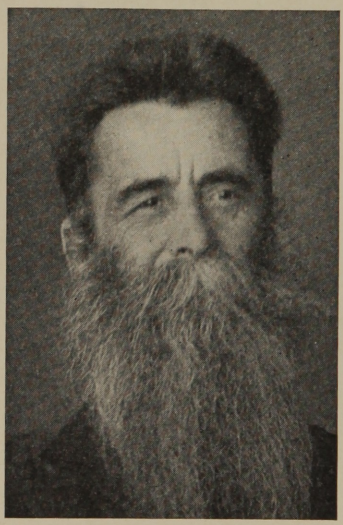


FIG. 27.—A common type of systematized delusions.

In former times the delusion was regarded as the sole criterion of insanity. To-day, a man may be adjudged insane and not give evidence of a delusion.

Delusions as well as illusions and hallucinations, being internal experiences, possess for the person holding them direct and strong reality. The logical manner in which patients often defend their delusive ideas is astonishing. Hence, it is useless to attempt to reason them out of their position. It is likely to do harm by more firmly fixing the morbid error in their minds. Ridicule is equally ineffectual, as it creates suspicion or raises an antagonistic spirit, and in this way the patient's confidence is lost. In the care of these cases the attention of the patient should not be called in any way to the subject of his delusions. Instead, every method should be used to direct his thoughts into other and more healthy channels. One great advantage of hospital care is the complete removal of the patient from the irritation or source giving rise to these delusions. This plan in itself is often of more benefit than the giving of medicine.

The Transformation of the Personality. — In normal life the consciousness of a distinct personality is never lost, excepting, occasionally, in sleep. In many pathological cases, however, it is subject to abrupt change. In such cases there is sometimes a sudden and complete transformation of the personality. The individual loses all knowledge of his past life, calls himself by a

strange name, and is possessed with entirely novel ideas, feelings, and tendencies. These two personalities alternate, and in some cases the second persists for longer periods than the original one. The number of personalities is not limited to two, but may consist of a number, each with its own distinct character and set of memories and ideas.

Disturbance of Capacity for Mental Work.— The capacity for mental work stands generally in inverse ratio to susceptibility to fatigue. Increased susceptibility to fatigue is very general in most forms of insanity. Distractibility is another cause for decreased capacity for work in mental disease.

Again, fatigue may fail to indicate, in morbid conditions, the actual need for rest; in other cases the feeling of weariness is constantly present, although there is no real exhaustion.

It has frequently been noticed that changes in the organic sensations are in the insane accompanied by peculiar illusions concerning the bodily parts affected. For instance, change of sensation of the extremities may give rise to the idea that the foot is dead, or that some disease, as smallpox, exists in the skin, or that the legs are made of glass and have to be carefully guarded to prevent them from being shattered.

Change of sensation of the internal organs may give rise to the feeling that live animals are in the stomach, or that poison has been administered.

Change in nervous action and checking or

hindrance of cerebral action may lead to the delusion that the mind is controlled by some other person or by a machine, or that the thoughts are "thoughts of another."

The sensations aroused by organic stimuli are of so much less importance for intellectual development than those dependent upon external stimuli, that the latter usually dominate consciousness, standing out in clearness and detail. The organic sensations fuse and form an indefinite background of consciousness. When from any cause the external stimuli lose their power over consciousness, the organic sensations take a more important place. They then become clear and distinct and everything relating to the personality is greatly exaggerated in consciousness. The same result might follow from a state of abnormal excitation of the centres for organic sensation. In such a case the organic sensations

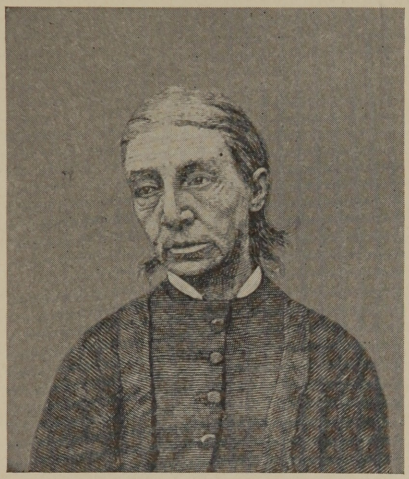


FIG. 28.—Organic sensations exaggerated; morbid ideas of bowel obstruction. (Savage.)

would by their intensity force their way to the centre of consciousness and so crowd out all other sensations (Fig. 28).

Thus, either a sluggishness of the processes of sensation or apperception, or hyperæsthesia of the organic centres may result in an abnormal exaggeration of the personality.

CHAPTER XII

C. DISTURBANCES OF THE FEELINGS AND EMOTIONS

EVERY sensory impression, as we have seen, which sustains any intimate relation to man's welfare, is accompanied in consciousness by a concurrent feeling of pleasure or pain. Hence, the feelings are a direct indication of the attitude of the person to the impressions of the external world.

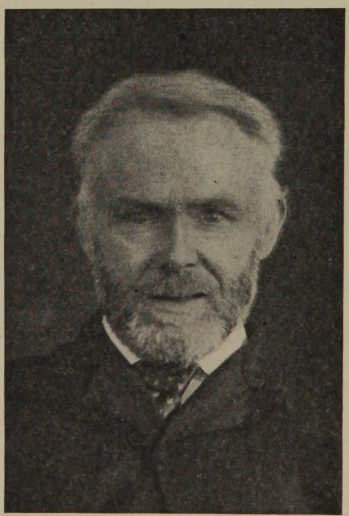


FIG. 29.—A case of maniacal excitement; exalted and happy.

Exaltation.—This change in the "emotional tone" is a condition of morbid elation, a feeling of happiness and well-being (euphoria) not in accord with

the condition of the patient or his surroundings (Fig. 29). It is usually combined with increased psychomotor activity. It is characterized by frequent variations of mood with a marked degree of irritability and at times outbursts of anger. As the train of thought leaps unsteadily from one subject to another, so the emotion varies with every changing impression of the moment.

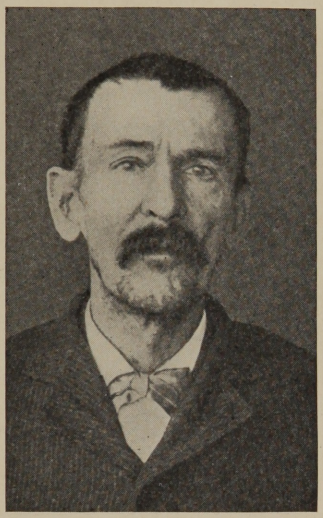


Fig. 30.—Physiognomy of depression.

Depression.—Depression is the opposite of exaltation. It is a morbid feeling of unhappiness, not in accord with the circumstances of the patient or with his surroundings. This is the simplest and most frequent disturbance. The patient loses interest in things which do not directly concern him. He loses pleasure in all forms of occupation and becomes exclusively selfish (Fig. 30).

When deterioration takes place, all feeling for the higher claims to propriety, morality, and religion is lost. Consideration for his surroundings, his family, has no influence on him, and finally, when emotional deteriora-

tion is advanced, he loses even the sense of shame.

Persistent morbid emotions are characterized by persistent domination of some definite feelings over the emotional life. The most common feeling tone here is sadness. All the natural pleasures of existence are transformed into a feeling of painful ennui. This unpleasant emotional state induces painful thoughts, fear, distrust, ideas of persecution, and self-accusation.

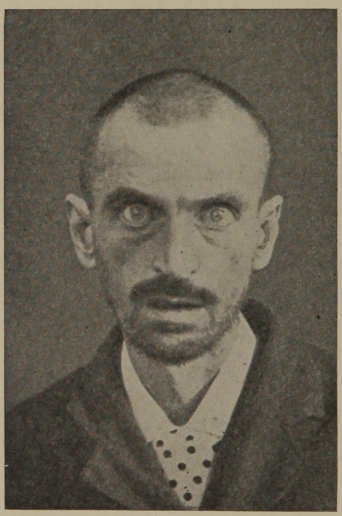


FIG. 31.—Manifested fear.

Fear is by far the most important persistent emotion encountered in morbid conditions. At first the patient feels afraid without knowing why, being even aware that his fears are groundless. In acute mental disorders these vague, anxious forebodings become fixed into more or less definite fears.

Fear is manifested by (1) anxious excitement, and by (2) anxious tension (Fig. 31).

1. Anxious excitement is characterized by efforts at defence and escape, supplication for clemency, suicidal attempts, and assaults.

2. Anxious tension is manifested in the patient by trying to present to threatening danger the fewest possible points of attack, by crouching down, shutting the eyes, and clinching the teeth. Anxious tension shows remissions, especially at night.

Sensibility to Pain.—While the feeling of physical pain may be increased, it is most frequently decreased or abolished (Fig. 32). Insensibility to pain may arise by indifference through want of attention, or through some delusion. Religious delusions in particular enable the patient to bear incredible suffering in silence. In this way self-mutilation of severe type may occur, such as fingers cut off, tearing out the eye-ball (obeying the injunction, "If thy eye offend thee pluck it out"), self-crucifixion, etc.

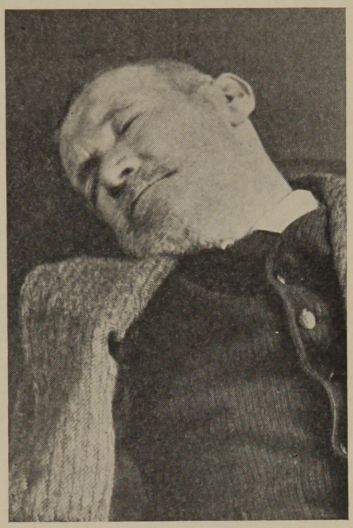


FIG. 32.—Insensibility to pain. In this case the prick of a pin made no impression on him.

Change of Appetite.—In some cases there is an insatiable desire for food, and large amounts even of indigestible articles are swallowed ravenously (bulimia). In this connection may be mentioned

the changed sense of taste or profound disturbance of consciousness that enables the taking of filth and other disgusting articles.

In other cases there is a prolonged absence of the feeling of hunger.

The Sexual Feelings.—The sexual feelings may be increased, diminished, or perverted.

CHAPTER XIII

D. DISTURBANCE OF VOLITION AND ACTION

THE tendency of the psychic life is to find expression in volition and action.

The idea of a definite aim (some change either in ourselves or our environment) forms the starting point of a volitional act. This idea is accompanied by feelings which are converted into impulses for the attainment of that aim. The direction of any action is determined, therefore, by an idea, while its performance is determined by the intensity and the duration of the accompanying feelings.

Decreased Psychomotor Activity (Fig. 33).—The impairment or suspension of voluntary activity is termed abulia.

Abulia is characterized by absence of energy and lack of initiative. Every degree of decrease is found in the various forms of insanity. It is, also, produced by extreme fatigue, alcoholic intoxication, and seen likewise in the narcosis of opium, etc.

The strength and rapidity with which a volitional impulse is converted into action is dependent not only on its own intensity but also on the resistance which it has to overcome. Fright and fear, for instance, may obstruct one's intention, to be overcome only by strenuous action of the will. The psychomotor retardation, which is a most important factor in depressed states, is probably due to a similar increase of resistance. All actions are slow and weak and in extreme cases action is almost impossible.

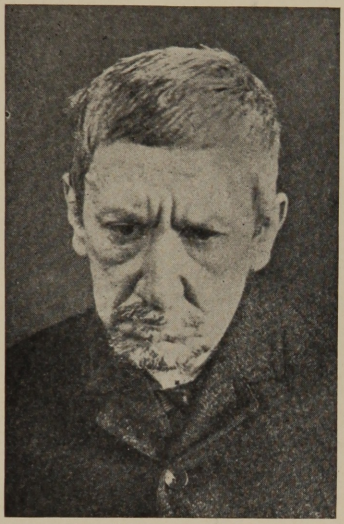


FIG. 33.—A case of decreased psychomotor activity.

Increased Psychomotor Activity.—This is the opposite of the decreased form, and is due to an abnormal, easy release of voluntary motor impulses. It is a prominent symptom of mania. It manifests itself in great restlessness, constant activity, even to the extent of violence and destructiveness.

Compulsion.—These acts are not those that arise from normal motive and desire, but seem to the patient to be forced upon him by a will

outside of himself. As a rule the patient struggles against the morbid impulse. He often cautions those about him, and adopts measures to prevent harm to others. The accomplishment of the act is accompanied with a feeling of relief; and having, as he does, a clear insight into the nature of the act, it is followed by chagrin and remorse.

If these compulsions are resisted or interfered with they give rise to certain symptoms, which in extreme cases constitute a true crisis. The patient feels weak, trembles, becomes dizzy, perspires, and finally yields, to find that at once all these symptoms disappear.

Impulsion.—Acts of this kind are distinguished from those of compulsion in that they do not seem to the patient to be influenced from without, but are the direct expression of a sudden overwhelming impulse arising within him, which gives no chance for reflection or resistance.

They are found in the most varied morbid conditions. Here belong "pressure of activity" in mania; the strong tendency to kill in transitory frenzy; the excesses of dipsomaniacs; and morbid impulses of hystericals. These acts are not controlled by pleasure or dislike; but by a blind impulse, rapid, reckless, making the patient dangerous.

Among the group of morbid impulses may be placed: kleptomania, an unhealthy impulse to steal; pyromania, a vicious impulse to burn; dipsomania, a brutalizing impulse to drink (see obsessions).

Stereotypy.—Stereotypy is manifested by a morbid persistence of a volitional impulse, which, once set in motion, repeats itself in the same way indefinitely.

It is manifested by (1) continued tension of definite groups of muscles, and (2) by numerous repetitions of the same movements.

1. These patients stay in fixed attitudes; stand in a corner, kneel in a particular place, or lie in bed with legs curled up and head extended. Some grip an object tenaciously with the teeth. The expression is rigid, mask-like, with the forehead drawn up, the eyebrows elevated, and the eyes often opened wide.

2. Stereotyped movements have an unlimited variety. The patients turn somersaults, rap rhythmically, walk about in definite places, hop, jump up and down, roll and creep on the ground, pick at clothing and hair, and grit the teeth.

Mannerism is a kind of stereotyped movement, which is seen either in acts or speech—consisting of peculiar gait, treading in one spot, going in a straight line or a circle, holding apron at the very end, eating in definite rhythm and shaking hands stiffly; also seen in grunts, lisping, in odd words, phrases and inflections and repetitions (verbigeration).

Negativism consists in the reaction to stimuli which is the reverse of the normal reaction. Patients do just the opposite from what they are requested to do; they press the teeth together when asked to show the tongue, close the eyes

when an attempt is made to examine the pupils, and refuse to answer questions (mutism), although they sometimes speak spontaneously. Negativism should not be confounded with obstinacy—voluntary opposition. After an attack a patient will often say that he does not know why he acted as he did.

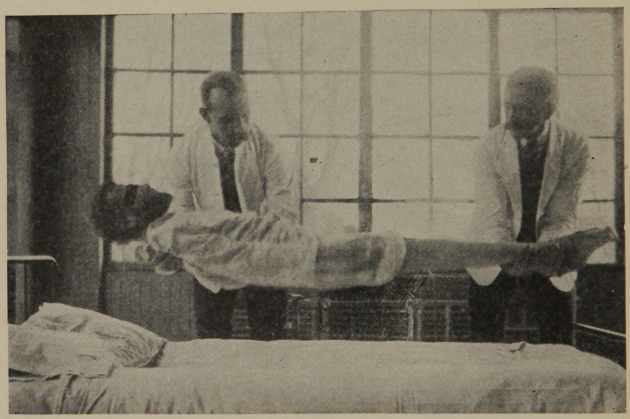


FIG. 34.—A remarkable case of catatonic rigidity. Supported only at the shoulders and feet, the body is completely suspended in midair.

Negativism, stereotypy, and loss of will power (abulia) probably all have the same basis. They often occur in the same patient, and may pass one into another.

Suggestibility.—Suggestibility is the exact opposite of negativism. By this term is understood a state in which the reactions of the patient are compelled by external impressions or suggestions. Its most perfect expression is catatonia, in which

the limbs assume and retain indefinitely the position in which they are placed. One form is called catatonic rigidity and another called waxy flexibility (*flexibilitas cerea*) (Figs. 34 and 35).

Sometimes suggestibility is manifested by the patient repeating words or phrases said in his presence—echolalia—or actions done before him—echopraxia. This method of reaction is called automatism.

FIG. 35.—Waxy flexibility, or the "lead pipe" rigidity (Berkley's Treatise of Mental Disorders—D. Appleton & Co.).

Suggestibility is a characteristic in most forms of mental enfeeblement. It is the type of the child's mind, whose thoughts are governed by external impressions, and who yields to the domination of the most diverse influences, good or bad. Many offenders belong to this class.

E. SPECIAL INDICATIONS

Insomnia.—Loss of sleep is an important symptom, not only because it is direct evidence

of a disturbed mind, but also because it acts as a cause of insanity. This sleepless condition tends to continue when once established. In some cases sleep may be entirely wanting, or very light and fitful and broken by dreams.

Somnambulism, or sleep walking, may occur in the sane as well as the insane. Akin to it is secondary consciousness, in which the person walks about, performs various acts, even commits crime, and on coming to himself has no recollection, or at least a confused memory, of the events that have transpired. To the casual observer the acts seem to have been voluntary and natural. This condition is seen in various hysterical states, or follows epileptic seizures. It is often advanced by malingerers to avoid the penalty of some crime which has been committed. Immunity from accident while in this state is noticeable, and may be explained by imperfect realization of the perils of the situation on the part of the subject.

FIG. 36.—Final permanent deformity resulting from hæmatoma auris (Kerrison's Diseases of the Ear).

Brittleness of Bones.—The bones in some forms

of the psychoses are exceedingly brittle, notably in paresis, on account of which they are easily broken. It is not so much a symptom as an accompaniment of insanity. The nurse caring for a patient of this kind should keep this fact in mind.

Round the rugged rocks the ragged rascal ran.

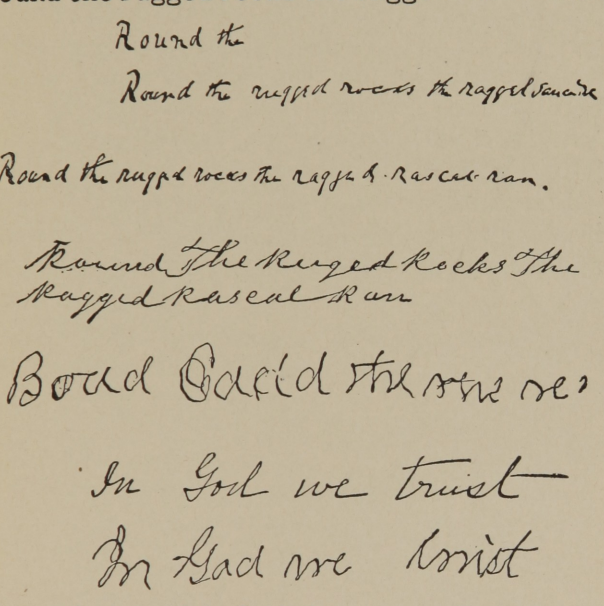


FIG. 37.—Specimen of the handwriting in general paresis (General Paresis—P. Blakiston's Son & Co.).

Blood Tumor of the Ear.—Blood tumor of the ear (aural hæmatoma) is due to extravasation of blood into the tissues of the external ear. It is very apt to occur in the insane from slight exter-

nal injury. It usually terminates in a shrivelled condition of the ear, and it generally points to a chronic and incurable mental state of the patient (Fig. 36).

The **writing** of the insane furnishes important signs and it is usually characteristic of the form of insanity (Fig. 37). It is bold and forcible in paranoia and mania; irregular with letters omitted in melancholia; it shows only unintelligible marks in the weak-minded, such as imbecility and dementia; and it is irregular and tremulous with omission of syllables and final letters of words in general paresis.

Sometimes patients conceal successfully their insanity while talking, but reveal their delusions and feelings in their writings.

PART FOUR

CHAPTER XIV

Forms of Mental Diseases

CLASSIFICATION

1. Infection Psychoses:
   - (*a*) Infection delirium.
   - (*b*) Fever delirium.
   - (*c*) Postfebrile psychoses.
2. Exhaustion Psychoses:
   - (*a*) Collapse delirium.
   - (*b*) Acute hallucinatory confusion.
   - (*c*) Melancholic and neurasthenic states.
3. Toxic Psychoses:
   - (*a*) Alcoholism.
   - (*b*) Morphinism.
   - (*c*) Cocainism.
4. Autointoxication Psychoses:
   - (*a*) Thyroigenous psychoses.
   - (*b*) Dementia præcox.
   - (*c*) General paresis.
5. Psychoses Due to Organic Cerebral Affections:
   Arteriosclerosis; cerebral tumors; cerebral syphilis; hemorrhage; softenings.
6. Psychoses of Involution:
   - (*a*) Involutional melancholia.
   - (*b*) Senile dementia.

7. Degenerative Psychoses:
   (*a*) Manic-depressive psychosis.
   (*b*) Paranoia.
8. Constitutional Psychopathic States:
   (*a*) Mental instability.
   (*b*) Sexual perversions.
   (*c*) Obsessions.
9. Psychoses Based upon Neuroses:
   (*a*) Epileptic psychosis.
   (*b*) Hysterical psychosis.
10. Defective Mental Development:
    Idiocy and imbecility.

1. INFECTION PSYCHOSES

The mental disorders which appear in the course of infectious diseases are brought about by the combined action of several factors: elevation of temperature, congestion of the nervous centres, and poisoning of these centres by microbic toxins. The most important factor appears to be the poisoning of the nervous centres.

Writers usually describe three varieties: infection delirium, fever delirium, and postfebrile psychoses.

(a) **Infection Delirium.**[1] — This condition is found associated with typhoid, typhus, smallpox, and malaria. It develops early in the infectious

[1] Delirium and confusion are terms in frequent use. By confusion is meant a state of disorientation (lack of apprehension of the environment) in all the three spheres—time, space, and personal identity. The confusion may be of any degree. By delirium is meant a confused and clouded state of mind (consciousness) associated with and symptomatic of fever.

disease, usually before the fever appears. It takes the form of an acute confusion, with or without hallucinations, or maniacal excitement.

(b) **Fever Delirium.**—A condition tending to confusion of variable severity and following the clinical course of the fever.

The outcome depends less upon the intensity of the delirium than upon the physical symptoms. As a rule, all febrile affections complicated with intense delirium should be considered grave.

In fatal cases the delirium gradually changes from excitement to coma.

The *treatment* is that of the infectious disease. The application of cold water is efficacious in relieving the mental symptoms.

(c) **Postfebrile Psychoses.**—These conditions occur upon the subsidence of the fever, following typhoid fever, cholera, pneumonia, influenza, etc.

The mental state is usually one of confusion with multiform hallucinations.

In most of these cases the exhaustion may be profound and terminate fatally; some less severe develop into a chronic delusion state.

The infection history *differentiates* these cases from forms of mental disorder whose symptoms they may simulate.

Fever and infection, like acute alcoholic intoxication, are excellent tests for judging the resistance of the mental stability of an individual. The greater the predisposition to mental disease and the more marked the degeneration of the person, the more likely it is for delirium to occur

under such conditions. Like alcohol, the microbic poisons and the toxic products of the organism act most readily upon brains in which the equilibrium is least stable.

The *treatment* of postfebrile types is mostly symptomatic, with careful nursing, rest in bed, nutritious diet, and cautious watching.

2. EXHAUSTION PSYCHOSES

The fundamental element of this morbid entity is mental confusion, which is primary, profound, and constant.

(a) **Collapse Delirium.**—This is the delirium grave or the acute delirious mania of the older writers.

All factors capable of bringing about rapid and profound exhaustion may be a cause: physical and mental stress; painful and prolonged emotions; loss of blood, puerperal state; slow convalescence from the acute fevers, such as typhoid, pneumonia, the exanthemata, etc. (Fig. 38).

The disease may begin by restlessness, irritability, and loss of sleep and appetite, after which a condition of mental confusion develops. The mental symptoms may be mild, but usually they are marked by hallucinations, clouding of consciousness, disorientation, and dreamy delusions. Psychomotor excitement is common, the patient being very active and inclined to violence and destructiveness.

There is not any form of psychosis where the excitement reaches so extreme a degree. In the

extreme cases the issue is usually fatal: incoherence becomes absolute, disorientation complete, and clouding of the mind profound. A high temperature develops, it may be as high as 106° F.; gastro-intestinal symptoms are common, there is complete anorexia, deeply-coated tongue, offensive diarrhœa, great emaciation, and exhaustion with typhoid symptoms, followed by coma and death. While the grave cases commonly die, the mild cases make a good recovery. The course of the disease is rapid.

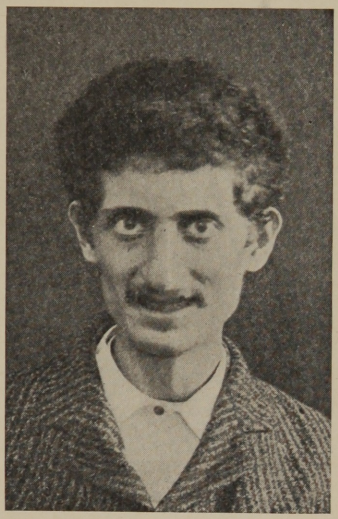


FIG. 38.—Example of exhaustion psychosis.

Treatment.—During the entire acute period rest in bed should be enforced.

A reconstructive diet, milk, eggs, chopped meat, and meat-juice should form the basis of the diet, which is more important than medication.

In case of refusal of nourishment, artificial feeding should be the resort.

For the excitement the continuous bath or wet pack serves well, with an occasional hypnotic. In the extreme exhaustion of the later stages

hypodermoclysis may be used with great advantage.

In convalescence, moderate physical exercise, open-air life, and light mental occupation for brief periods should be instituted.

(b) **Acute Hallucinatory Confusion.**—This type is less acute than the former, but of the same general nature. It is characterized by confusion, multiform fleeting hallucinations, and changing delusions. The duration usually extends over a number of months. The course may be interrupted by lucid intervals.

(c) **Melancholic and Neurasthenic States.**—These conditions should be distinguished from the psychopathic states and congenital neurasthenia. They are characterized by a diminished power of attention, defective mental application, difficulty of thinking, increased susceptibility to fatigue, increased emotional irritability, and a great variety of physical symptoms, mostly subjective, including hypochondriasis.

Etiology.—The real nature of the disease has been most plausibly pointed out by Möbius, who claims that there is a kind of chronic intoxication resulting from the effects of exhaustion upon nervous tissue, comparable in a measure to the intoxication resulting from the prolonged excessive use of alcohol.

The prevalence of this disease is often attributed to rapid, irregular, and extravagant manner of living, with little relaxation and lack of sufficient and wholesome sleep in persons actively

engaged in business or taxed with responsibility of the household. Beside excessive mental application, the worry attendant upon responsibility is an important factor. The disease may appear at all ages, but is most often met between the ages of twenty-five and forty-five, the period during which the greatest mental strain occurs.

The onset of the disease is gradual; its course is often protracted; and the convalescence slow.

Treatment.—In milder cases, a trip to the mountains or a sea voyage may relieve the asthenic condition. When this is impracticable, removal from the customary surroundings into a quiet, restful, but attractive place may accomplish the same results.

In the more severe cases, there should be a well-regulated routine, with a definite amount of sleep, nourishment, mental and physical exercise, alternating with rest and relaxation, together with baths and outdoor life.

3. TOXIC PSYCHOSES

Of the many toxic substances whose continued use leads to disturbances of the mind, those best known and of most clinical value are alcohol, morphine, and cocaine.

(a) **Alcoholism** (Fig. 39).—Chronic alcoholic intoxication is marked by a degenerative process in the central nervous system and is characterized by a gradual progressive enfeeblement of all of the powers of the mind.

Symptoms.—There are in these individuals a

diminished capacity for work, faulty judgment, defective memory, occasional delusions, the most characteristic of which is marital infidelity; and also various nervous symptoms. It is a matter of common observation that the steady hard drinker deteriorates morally; that his will power is diminished; in short, he becomes a slave to his appetite. He turns out to be unreliable, untruthful, without ambition or even the feeling of self-respect. He also gets neglectful of the future and becomes lost to all sense of duty to himself and his family.

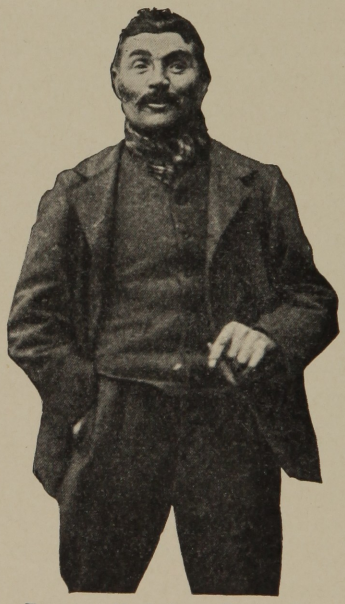


FIG. 39.—Alcoholism. (Weygandt).

There are a number of distinct disease entities belonging to this group. The more important are:—

1. Delirium tremens, which is characterized by a rather sudden development of numerous fantastic hallucinations, mostly of sight and hearing,

indefinite and changing delusions, chiefly of fear, with confusion, restlessness, tremor and ataxic disturbances, with rapid course and good prognosis.

Many chronic alcoholics develop what in their parlance is called a "touch of the horrors," which in reality is an abortive form of delirium tremens.

2. Alcoholic hallucinosis, which is characterized by the sudden development of delusions of persecution, based mostly upon hallucinations of hearing.

3. Korsakoff's psychosis, which is a form associated with polyneuritic symptoms and a tendency to fabrications of memory.

4. Alcoholic pseudoparesis. On a groundwork of mental enfeeblement develops a true expansive delirium, combined with ataxia, speech defects, and muscular weakness.

5. Dipsomania, which is a periodic impulse in a neuropathic subject for stimulation by intoxicating liquors.

The alcoholic cause in all of these forms *differentiates* them from any of the psychoses that they may simulate.

The *treatment* of delirium tremens and the other acute alcoholic psychoses should be supporting. Bowels and kidneys should be kept free. Heart stimulants are often necessary. For the excitement, hydrotherapy in the form of the continuous bath is valuable. The treatment of chronic alcoholism should also be tonic and supporting with a modified "rest treatment."

(b) **Morphinism.**—The extensive use and abuse of morphine place it second only to alcohol in the production of mental and physical wrecks.

Causes.—The most important factor is the neuropathic constitution. The intolerance of pain among a large number of people in this age, together with the laxity of physicians in dispensing narcotic drugs, accounts largely for the evil.

Symptoms.—The effect of a single dose is at first a mild mental stimulation followed by a period of pleasurable quiet. This condition is succeeded by malaise, headache, dry mouth, constipation, and nausea if indulgence continues.

In the prolonged use of the drug the quieting effects can only be obtained by increased dosage, which may, in time, reach from thirty to fifty grains daily. The ill effects of the habit are manifested by weakened memory, diminished capacity for work, and a gradual impairment or loss of the moral sense.

The abrupt withdrawal of morphine in persons who have formed the habit results in what are termed "abstinence symptoms." The patient becomes tremulous and uneasy, his expression is anxious and his respirations accelerated. He is unable to concentrate his mind and complains that he is unable to bear the torture of his feelings. If abstinence continues the situation becomes more and more alarming; extreme pallor of the face, weak and rapid pulse, general prostration, cold sweats and diarrhœa appear, and collapse

is threatened. No matter how grave the symptoms, a single injection brings immediate relief.

The *prognosis* is always serious. It is estimated that less than 10 per cent. recover permanently; relapses are frequent.

The *treatment* of morphinism is directed to the removal of the drug and the symptoms of abstinence. Isolation is an important factor. It is well not to begin reducing the quantity of the drug until the patient has been under care for a time to establish confidence and raise the standard of general health.

There are two methods of withdrawal practised —the sudden and the gradual.

(c) **Cocainism.**—Like morphine, cocaine produces soon after absorption a peculiar state of euphoria manifested by a sense of vigor and energy. The habit becomes established after a few injections, much sooner than in the case of morphine.

Etiology.—The conditions are similar to those found in morphinism. Most of the patients have a strong neuropathic basis and many of them have previously been addicted to morphine. Usually it is found that alcohol and morphine are associated with it.

Symptoms.—In the prolonged use of the drug the normal activity of the individual is replaced by indolence and indifference. The memory is enfeebled and the disposition becomes habitually sad, gloomy, and pessimistic. This may be replaced by short periods of gaiety and feverish

activity. The general nutrition is poor, the weight reduced, digestion sluggish, and there is often diarrhœa alternating with constipation.

The *prognosis* is unfavorable and few only resist temptation for any great length of time.

Cocaine Hallucinosis.—An acute delirium may suddenly develop in these subjects, which closely resembles alcoholic hallucinosis. It is a delirium of a painful character associated with very vivid illusions and hallucinations of different senses. The duration of the attack is usually brief.

In the *treatment* of cocainism, isolation is necessary. The drug may be rapidly withdrawn, as the symptoms of abstinence are not so urgent as in morphinism.

CHAPTER XV

4. AUTO-INTOXICATION PSYCHOSES

(a) **Thyroigenous Psychoses.**—The two forms of psychosis produced by disturbances of the thyroid gland are myxœdematous insanity and cretinism. They are due to faulty action of the thyroid gland; cretinism occurring in early childhood and myxœdematous insanity in adolescence and later.

(1) *Myxœdematous insanity* (Fig. 40).—The mental disturbance manifested by myxœdema is a progressive mental enfeeblement accompanied by characteristic physical symptoms.

Mentally these patients are unable to collect

their thoughts and with difficulty comprehend written or spoken language. Their memory is defective. They are often anxious, dejected, and apprehensive, and at times sulky and ill-natured.

Physically the skin becomes thick, dry, and rough. The lines of the face are obliterated; the features are dulled; the eyes sunken, and the lips thickened. The hair of the head and face is scant, discolored, and atrophied.

FIG. 40.—A case of myxœdematous psychosis (Weygandt).

The course of myxœdema is progressive, but interrupted by remissions.

The *treatment* of myxœdematous insanity is by dried thyroids of the sheep, which act as a specific remedy in this disease. The improvement in favorable cases soon sets in and increases rapidly. The remedy acts alike on the mental and physical symptoms. Usually the patient is in convalescence between two and three months. Not all cases, however, yield to treatment; relapses may occur.

(2) *Cretinism.*—The disease is mostly endemic in mountainous regions. It is a form of imbecility due to loss of function of the thyroid gland in infancy. The gland is found to be either atrophied or non-developed.

Mentally, the patient is dull, stupid, indifferent, sleepy, and unable to care for himself. He fails to develop and presents about the capacity of a five-year-old child (Fig. 41).

FIG. 41.—Cretin, twelve years of age (Cotton's Diseases of Children).

Physically, the head is large and the neck short and thick, the nose broad, the ears prominent, the skin thickened as if padded and in places hanging in folds; the limbs and body are shortened and pudgy; the tongue and lips are thick, the hair scanty, and teeth poor; the speech is inarticulate, the movements unwieldy, and the gait slow and awkward. The patient has little power of resistance and readily succumbs to intercurrent disease.

The *medical treatment* is of no avail after the disease has fully developed. In some cases, however, desiccated thyroid improves the physi-

cal symptoms, but it makes no impression on the mental condition. As a prophylactic measure, children with cretinoid tendencies may receive much benefit by giving attention to drinking water and by sending them to the high mountains. According to recent observations the administration of thyroids may ward off a threatened attack.

(b) **Dementia Præcox.** — This designation is applied to a large group of cases occurring generally in the period of puberty and adolescence, although sometimes later characterized by a pronounced tendency to mental deterioration of varying degree, although frequently interrupted by remissions.

Etiology.—The disease is one of the most prominent, comprising from 14 to 30 per cent. of all admissions to institutions for the insane. It is estimated that more than 60 per cent. of the cases arise before the twenty-fifth year. Defective heredity is an important factor. There is frequently in early life a history of deliria accompanying moderate fever, of convulsions in childhood, and great susceptibility to alcohol, as well as the absence of sexual impulses or their early or unnatural development. Many of these persons exhibit in youth peculiarities, such as seclusiveness, affectation, eccentricity, precocious piety, impulsiveness, and moral instability.

Dementia præcox is usually divided by authors into three distinct groups—hebephrenia, catatonia, and the paranoid forms.

Hebephrenia (Fig. 42).—This form begins with a prodromal period of several months, during which the patient suffers from mild depression, insomnia, headache, anorexia, and loss of flesh. The more important active symptoms of the full development of the disease are unsystematized delusions, often hallucinations, dilapidation of thought and judgment, lessened capacity for mental work, exaggerated ego, emotional indifference, impulsive acts, stereotyped movements, and negativism.

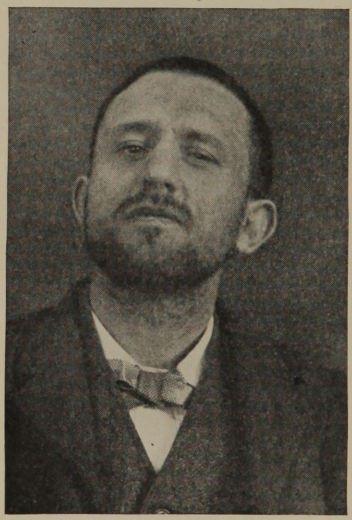


FIG. 42.—A hebephreniac who had a typical dementia præcox mother.

The course of the disease in this form is subject to all sorts of variations. There develops later a condition of dementia, which may be permanent or interrupted by repeated exacerbations. Occasionally conditions of marked excitement develop for short periods, with mischievousness, talkativeness, and aimless wandering about, as well as laughing and giggling behavior.

Catatonia (Fig. 43).—After the more or less vague symptoms of the prodromal period, the

typical symptoms of the disease appear which group themselves into two stages which irregularly alternate—catatonic stupor and catatonic excitement. The stuporous states are marked by negativism, hypersuggestibility, and uniform muscular tension; the excited states by stereotypy and impulsiveness. In most cases, with or without remissions, the disease progresses into settled mental deterioration.

FIG. 43.—Catatonia (Berkley's Treatise of Mental Disorders—D. Appleton & Co.).

Paranoid Forms (Fig. 44). —They are characterized by the great prominence and persistence of delusions and hallucinations, in spite of progressing dementia. They may be divided into two general groups of cases.

The *first group* of cases is characterized by a comparatively acute onset, with the usual symptoms of insomnia, depression, loss of appetite, and emaciation; a loosely organized delusional system, the delusions of which are incoherent, fantastic, and changeable, associated with numerous fleeting hallucinations, especially of hearing.

Associated with persecutory delusions are ever-changing expansive ones.

The *course* is progressive without remissions. The signs of mental deterioration begin early and may be well marked by the end of two years.

FIG. 44.—Paranoid form of dementia præcox (Weygandt).

The *second group* of cases is characterized by hallucinations and fantastic delusions of persecution and grandeur, which are mostly coherent and are adhered to for a number of years, when they disappear after the patient has passed into a state of moderate dementia. To this group belong the "fantastic paranoiacs" who decorate

themselves lavishly with all sorts of ornaments and insignia, usually made by themselves.

The *prognosis* of dementia præcox on the whole is not favorable. Seventy-five per cent. of cases do not improve, 18 per cent. improve more or less, and only about 7 per cent. recover.

The *treatment* of the disease is largely symptomatic.

(c) **General Paresis.**—A comparatively modern form of disease, at least one that had not been recognized earlier than a hundred years ago, is general paresis, a type of degenerative disease that is very prevalent throughout the civilized world to-day and one that forms a prominent group of the admissions to the institutions for the insane. It is a grave form of mental breakdown, commonly of early middle life, and is much more frequent—five times more—in men than women. This affection was first described by French observers, the pupils of the great Esquirol in the early part of the last century. It has occupied a conspicuous place in the discussions of physicians since that time, and the space given to it in medical literature is voluminous.

The *symptoms* of the fully developed disease are characterized by difficulty of speech, pupillary anomalies, muscular tremor, and uncertain gait, accompanied on the mental side with intellectual weakness and delusions of grandeur.

Etiology.—There are prominent writers who claim syphilis as the sole etiological factor, while others insist that in addition to syphilis there

must be also a neuropathic constitution either inherited or acquired. However this may be, the history of the large majority of cases is one of intemperance, licentiousness, sexual excess, syphilis, or some nervous exhaustion incident to excessive application to business, or the great strain attending reverses. Most of the cases occur between the ages of thirty-five and fifty years.

Authors usually make four typical divisions in the following order:

(1) A prodromal stage, or period of moral and mental alteration.

(2) A stage of decided mental alienation, or of dementia only.

(3) A stage of chronic mental disorder.

(4) A stage of fatuity (Mickle).

The Prodromal Stage.—At the outset the symptoms are very obscure and insidious, and it is due to this fact that the family physician, into whose hands the case first falls, often fails to recognize it.

Generally, among the earlier indications is a lack of mental vigor. This may be manifested on the part of the subject by a loss of interest in his business, or an inability to attend regularly to his affairs. It may be impossible to keep his attention fixed for any extended period, and at the same time he may be able to follow out in a fair way the routine of his daily duties, if these be not too exacting.

However, the inability to fix his attention is attended with a spirit of unrest, which in turn

develops into an alteration of character and disposition. The patient seems erratic and unduly excitable, especially over individual interests. In this change of character, Pierre de Boismont, a long time ago, first called attention to a failure or perversion of the moral sense as one of the most notable of the early symptoms. In rare instances, even several years before any other sign of the disease has been detected, some moral lapse, as an act of theft or indecency, has occurred.

Moderate exercise often causes unwonted fatigue of mind and body. Confusion of ideas, temporary forgetfulness, an inability to control the mental processes as heretofore, result in discouragement and irritability on his part. The mental symptoms at this stage are seldom appreciated by the family. Furthermore, the feelings are intensified and the patient readily becomes excitable, even about trivial matters. Temporary loss of self-control follows with an exhibition of temper on occasion beyond the degree that is wont to be displayed, even by one nervously fatigued. Sometimes a change in the affections occurs, so that persons previously dear to the patient become obnoxious to him.

Long before this catalogue of mental disturbances has been completed, the physical symptoms usually make their appearance; in some cases the two appear together. The patient may complain of being "nervous." Insomnia is frequently an early trouble, or the sleep may be very light and

unrefreshing, often disturbed by dreams and nightmares. There are certain diffuse symptoms that should be mentioned; chief among these are flashes of heat to the head, and alternate pallor and flushing of the face; momentary pains of neuralgic character, felt in different parts of the body; or a localized pain, as a facial neuralgia, or a burning spot on the trunk or limbs; exalted sensibility, followed by tingling of the skin, sometimes loss of sensation, or altered sensation. Some patients have the feeling that they are walking on air, and are not fatigued after exercise that may be excessive, while others are easily tired and experience but little relief from rest. The circulation may be sluggish and congestive attacks not infrequently occur.

The first stadium passed, the disease becomes, soon or late, well defined in the development of symptoms that are characteristic and pronounced.

First Stage of the Established Disease (Second Period).—Mental symptoms: The patient passes from a condition of mental alteration, as before described, into that of alienation. In typical cases there is a delusional state of mind which is modified by the underlying condition of mental enfeeblement. The prevailing type of delusion is that of grandeur. It is shown in an exaggerated estimate of his own strength, of his wealth and of his self-importance (Fig. 45). He expresses himself as being in the best of spirits and health, and his affairs most prosperous. He is often in

an irritable mood and at times roused to violence, but he can easily be turned and calmed into good-natured complacence. In this stage there are usually repeated exacerbations of the symptoms, leaving the mind each time more clouded.

Physical symptoms: The general health of the patient is usually very good. In a cheerful frame of mind, free from care and anxiety, all of his bodily functions are performed normally; his appetite is good and he sleeps well at night.

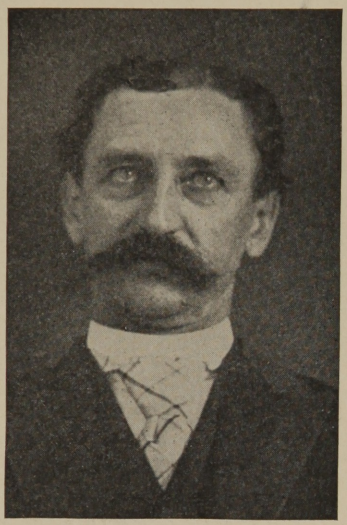


FIG. 45.—First stage of paresis, showing exaltation and self-importance (General Paresis—P. Blakiston's Son & Co.).

The diagnostic physical symptoms are chiefly defects of speech, pupillary anomalies, and tremor.

The speech defect consists in the slow, slightly labored enunciation, as though the patient were speaking with unusual precision; sometimes he shows a labored effort to enunciate a word. In time this is followed by a blurring of consonants and a slight thickening of the speech. These defects are augmented when the patient is fatigued. In the latter part

of this stage the difficulty of speech becomes more noticeable.

The pupils are often unequal, or the inequality may not be constant. In other cases they are found contracted; often more or less sluggish to light. One or both may be irregular in outline. Dilation at this stage is not so common.

The facial expression undergoes a change. The eyebrows are raised and when the patient is about to speak the occipitofrontalis is brought together with a tremor. The features are generally florid, and the lines which give character to the face disappear.

The tremor is seen in the muscles involved in speech, as those of the face, lips, and tongue, gradually extending to those of the hands and limbs. The control of the fingers is early affected, although the handwriting remains comparatively steady and natural throughout this stage.

Second Stage (Third Period).—Mental symptoms: The failure of the mind is most apparent in this stage (Fig. 46). The patient is no longer able to form new ideas, but gives expression to the old delusions, in a desultory, stupid manner, due to the increasing dementia. They are but the automatic semblance of the grandiose ideas conceived when the memory and the imagination were vigorous and active. He becomes less trustworthy and responsible, and his conduct is childish and uncertain. He loses his appreciation of his surroundings and all sense of shame. He gathers into his pockets rubbish and articles of

no value, and does not discriminate between his own belongings and those of other persons. He falls into untidy habits, which later become slovenly to an extreme degree.

FIG. 46.—Second stage of paresis, showing full development of the disease (General Paresis—P. Blakiston's Son & Co.).

Physical symptoms: The appetite is apt to be voracious and the patient takes on flesh and becomes stout and flabby.

The articulation is now a marked feature. The patient stumbles over his words, and his speech

is like that of a drunken man. Labials and linguals prove most troublesome. Words are uttered with a propelling force, the speech is slow and drawling; there are frequent omissions of words, and entanglement of thought and a forgetting of the ideas when half expressed. The tongue can only be thrust out in a jerky manner with effort with fibrillar movement on each side. On attempting to speak there is spasmodic twitching of the muscles about the mouth, especially the upper lip, as well as those of the forehead.

The pupils are now generally sluggish in reaction both to light and accommodation; they are irregular in shape and unequal in size. The expression has become dull and stolid; the body settles upon itself as in advanced life, with much stoop to the shoulders.

Toward the end of the stage the common habits—walking, talking, writing, and eating solid food—are accomplished with more and more difficulty owing to muscular weakness, tremulousness, and incoördination; at last these habits become abolished.

Third Stage (*Fourth Period*) (Fig. 47).—Mental symptoms: This stage is generally reckoned from the time that the patient takes permanently to his bed on account of the advance of the disease. The progressive failure of mental integrity which has slowly taken place finally reaches the point of absolute fatuity. The face has now lost its entire expression and the paucity of mind is reflected in the vacant look. The

speech is reduced to simple phrases until the patient speaks very little and toward the end not at all. In some cases there is an inarticulate shouting, especially at night, and in others an occasional meaningless moan.

Physical symptoms: The reduction seen in the mental sphere may also be seen in the physical. The muscular incoördination and paresis advance to an extreme degree. The gait gets so unsteady that the patient cannot take a step, and standing alone unguarded soon becomes impossible. Contractures of his legs, in a flexed position, gradually increase, producing in some cases much deformity.

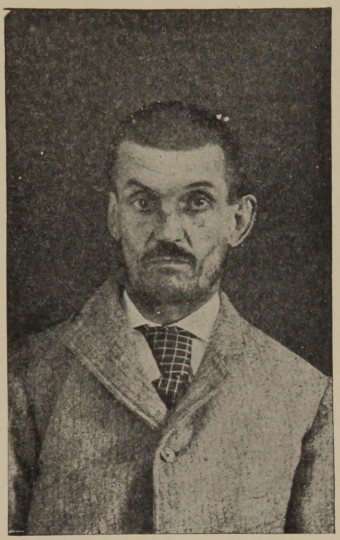


FIG. 47.—Third stage of paresis, showing marked dementia (Chase's Paresis —P. Blakiston Son & Co.).

The deep tendon reflexes are usually permanently abolished and the pupils no longer, as a rule, respond to light and accommodation. Trophic changes, such as bed-sores, etc., soon appear, if not carefully guarded against.

In this helpless state the sufferer lies, with

nearly every semblance to a rational being extinct, until death puts an end to the scene.

There are several varieties of general paresis, of which the more important are as follows:

The galloping form. As the name suggests, the galloping form acts so rapidly that it runs its course in a few months or even weeks.

The melancholic form. In place of elation, the symptoms are distinctly of a melancholic type.

The spinal form. A group of cases where the first manifestation of the disease has its beginning in the spinal cord.

Simple progressive dementia. Some cases exhibit simple weak-mindedness throughout the whole course of the disease, without any intermediate stages of excitement or depression.

Juvenile form. General paresis in early life—under twenty years of age—is very rare and is due to hereditary syphilis.

The *prognosis* is uniformly unfavorable. It should be kept in mind that remissions quite frequently occur, so that the patient may be able to leave the hospital and remain at home for weeks or even months. The majority of the cases die in from eighteen months to three years, while in a small per cent. the disease process is very slow and the case may be prolonged for years.

The *treatment* of the disease is chiefly symptomatic. It is important that the patient be submitted to forced rest. Next to rest there should

be outlined a simple nutritious diet, which in time should be modified by substituting for solid, semi-solid food to prevent choking as the deglutition becomes weakened, and finally reduced to a fluid diet. For the excitement the cold pack or the continuous warm bath is indicated. Attention should be given that bed-sores do not form, and in nursing the patient care should be exercised to prevent fractures, owing to the extreme brittleness of the bones.

Finally observe the condition of the bowels and the bladder, the latter being liable to distention. The mouth should be kept clean.

CHAPTER XVI

5. PSYCHOSES DUE TO ORGANIC CEREBRAL AFFECTIONS

All of the so-called cerebral affections, whether diffused or localized, have an influence upon the mental functions (Fig. 48).

Among the most important may be mentioned general arteriosclerosis, cerebral tumors, abscess of the brain, chronic inflammation of both membranes and cortex, hemorrhages, and softening of the brain.

As met with in a slight degree of intensity the mental manifestations of these different pathological conditions give rise only to a mild sluggishness of ideation and change of character.

In the more marked cases we find intellectual

obtuseness. The patient comprehends but little that is said to him; he is incapable of sustaining a continued conversation. At times he is disoriented, does not know exactly where he is, and loses all account of time. He often requires the care given to a child, and in grave cases he may be untidy and even filthy in his habits.

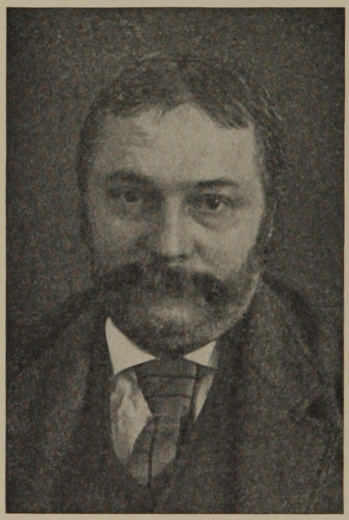


FIG. 48.—A case of organic dementia following cerebral hemorrhage.

His memory is much impaired. Current interests make little impression, while old memories are effaced. He shows marked emotional indifference, which is apt to be punctuated by outbursts of anger or emotionalism out of character with the provocation, closely resembling conditions met with in senile dementia.

In the *treatment* attention should be given to taking unnecessary strain from the cardiovascular system. Easily assimilated food, care of the emunctories, moderate exercise, freedom from worry and from mental and physical exertion should be given. As insomnia is liable to be

present, special attention should be directed to its correction.

6. PSYCHOSES OF INVOLUTION

(a) **Involutional Melancholia.**—Morbid heredity or congenital predisposition is found in 60 or 70 per cent. of these cases. The most common exciting causes are grief, stress, infectious diseases, such as tuberculosis, and in women the menopause. It occurs chiefly between the ages of forty and sixty years, at the period of organic retrogression, hence the appellation, involutional.

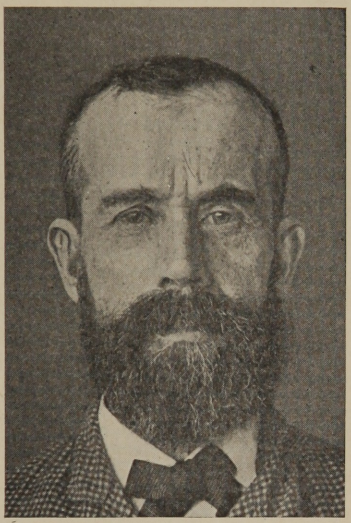


FIG. 49.—Melancholia, first group.

It is characterized by uniform depression with fear, various delusions of self-accusation, of persecution, and of a hypochondriacal nature, with moderate clouding of the mind and disturbance of the train of thought, leading in the greater number of cases, after a prolonged course, to moderate mental deterioration. It may be divided into two groups:

The *first group* is the more common (Fig. 49).

The onset is gradual, extending over months and sometimes years, indicating a profound, slow, and progressive change of the entire organism; the digestion is painful, there is loss of appetite, insomnia, irritability, and a tendency to rapid fatigue. These patients are sad, dejected, and apprehensive, finding no pleasure in anything. They are overpowered by doubts, fears, and self-accusations. They feel ill, complaining often of feeling dumb, confused, and forgetful. They find it hard to put forth any effort, and everything seems a mountain of difficulty to them. Delusions of self-accusation are common, especially of a religious train; also hypochondriacal delusions, as well as those of fear. Hallucinations of hearing and sight often are experienced.

The *second group* (Fig. 50) is smaller and is characterized by agitation and a greater preponderance of fear and apprehension. The depressive delusions in some cases become even nihilistic, when the patient claims that nothing exists, that there are no food, no houses, no trees, that no one is alive, and the like.

The *prognosis* is not favorable, considering that only about one-third of the cases recover. The remaining undergo slow mental deterioration. The prognosis is still less favorable after fifty-five years of age.

The first essential in the *treatment* of these cases is the removal of the patient from the deleterious influences of the home environment. It is necessary in most cases that the patient be

kept in bed much of the time. Insomnia is a frequent symptom which must be met, as well as refusal of food and a strong tendency to suicide. Artificial feeding often has to be resorted to, especially if the patient is losing weight; and the utmost vigilance, both night and day, should be exercised. In cases of extreme agitation, hydrotherapeutic measures are the best means to calm the patient—the hot pack and the continuous warm bath.

FIG. 50.—Melancholia, second group (Weygandt).

(*b*) *Senile Dementia.*—Senile dementia includes those forms appearing in the period of involution, depending upon senile pathological changes of the brain. The primary and fundamental symptom is progressive mental deterioration. It comprises several groups of cases, including simple senile deterioration, senile confusion, and senile delirium.

Etiology.—The disease may appear any time during involution, but it is most likely to occur between sixty and seventy-five years of age. Heredity is not so important a factor as it is in many other forms of mental alienation. Frequently the disease develops after an injury, particularly head injury, emotional shocks, also acute febrile diseases.

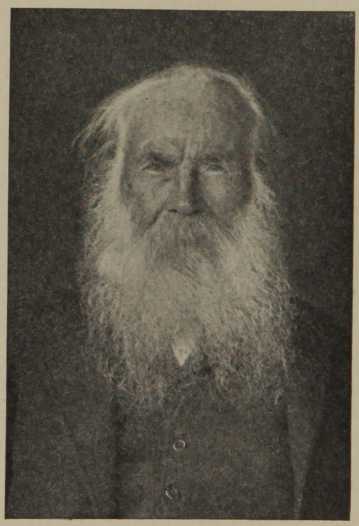


FIG. 51.—Senile confusion. An old soldier who fought under Napoleon I; he was over ninety years of age when this photograph was taken.

Simple Senile Deterioration: This form is manifested by failure of memory, progressive defect of apprehension, delusional ideas, consisting mostly of excessive fear of illness, senseless distrust, or childish egoism. There is great variation in the emotions. Marked indifference and lack of sympathy are prominent characteristics. The patient becomes apathetic and fails to enter into the sorrows and joys of those about him. Self-interest, with the gratification of personal whims, precedes everything. The conduct varies greatly. Some are quiet and orderly,

while others are restless and irritable, especially at night.

Senile Confusion (Fig. 51): This is a deeper grade of deterioration. There is great clouding of consciousness and complete disorientation. The emotional attitude varies. Some of these pa-

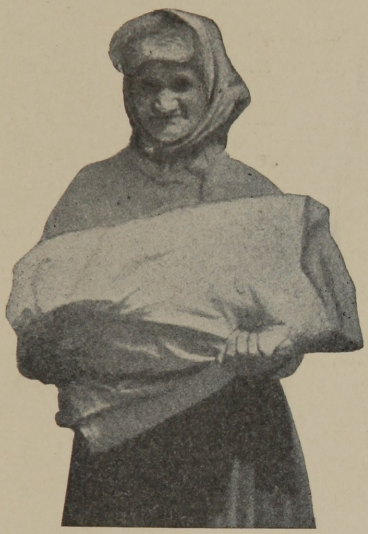


FIG. 52.—Senile delirium (Weygandt).

tients are dejected and irritable, others elated and happy. Delusions of a fantastic nature are numerous and often hallucinations of sight and hearing occur.

Senile Delirium (Fig. 52): This form is characterized by a more acute onset and a shorter course. There is a great clouding of conscious-

ness, active hallucinations, and delirious conduct. Insomnia is extreme.

The *duration* of senile dementia is from three to four years.

Treatment.—The treatment is wholly symptomatic. Insomnia is most stubborn, and faulty nutrition needs careful watching. Hygienic surroundings, a simple diet, and looking after the emunctories are the principal indications.

7. DEGENERATIVE PSYCHOSES

(a) **Manic-depressive Psychosis.**—This term is applied to that mental disorder which recurs in definite forms at intervals throughout the life of the individual. The disease almost always appears independently of external causes. A defective hereditary endowment seems to be the most prominent *etiological* factor. The forms which were earlier known as mania, simple mania, simple melancholia, periodic mania, and circular insanity belong to this group.

Symptomatically, the attacks are of three types, viz., manic type, depressed type, and mixed type.

Manic Type: This form is characterized by psychomotor excitement, flight of ideas, great distractibility, pressure of activity, unrestrained emotional attitude, usually happy in character, unstable delusions, some hallucinations, and comparatively little clouding of consciousness. All the bodily functions are carried on normally.

The Depressed Type: This form is characterized by psychomotor retardation, absence of

spontaneous activity, dearth of ideas, dejected emotional attitude, prominent delusions of a depressed character, hallucinations, and usually clouding of consciousness. In this type, during the depression, the general health is disturbed.

FIG. 53.—Manic-depressive psychosis. Mixed type showing the same patient in the normal and depressed stages (Church and Peterson—W. B. Saunders & Co.).

There is apt to be constipation, sleeplessness, loss of appetite, and derangement of the digestion.

The Mixed Type: This form is characterized by a combination of the symptoms of the other two types in an alternating manner.

Manic-depressive psychosis comprises numeri-

cally a large group, consisting of 10 to 15 per cent. of the admissions to hospitals (Fig. 53).

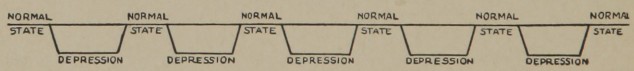
Manic-depressive attacks of insanity present a very marked tendency to recur. According to the particular forms assumed by the successive attacks, several types are distinguished:

1. Periodic psychoses: (*a*) recurrent mania; (*b*) recurrent melancholia.
2. Alternating psychosis.
3. Psychosis of double form.
4. Circular psychosis.
5. Irregular forms.

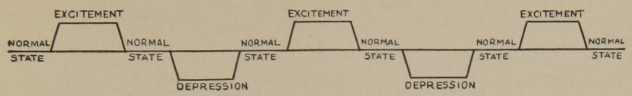
1. *Periodic Psychoses.*—(*a*) Recurrent Mania.—The attacks are always of the maniacal type and are separated by normal periods. The number of attacks and the duration of the normal periods vary greatly.

In other cases the attacks follow each other at brief intervals and with a certain regularity.

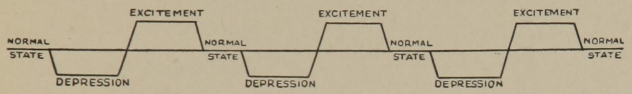
(*b*) Recurrent Melancholia.—Less frequent than the preceding, this form is its counterpart. What has been said about recurrent mania is applicable to periodic depression.



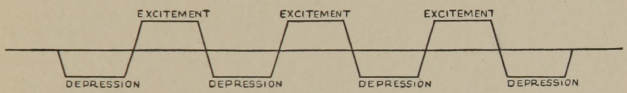
2. *Alternating Psychosis.*—The attacks of mania and those of depression alternate and are separated from each other by normal intervals.



3. *Psychosis of Double Form.*—Each attack consists of a period of depression and one of excitement; the attacks are separated by normal intervals.



4. *Circular Psychosis.*—The attacks of this form follow each other without interruption.



5. *Irregular Forms.*—These are the most frequent. The attacks follow each other without order or regularity.

The *course* of manic-depressive psychosis is marked by a recurrence of attacks, separated by lucid intervals. Generally the attacks recur throughout the lifetime of the individual. The duration of the attack may vary from a few days to several years, but the usual duration is from six to twelve months. The depressive attacks average longer. The lucid intervals vary considerably in length, from a few days or weeks to many years, and they stand in no definite relation to the duration of the attack.

The *prognosis* of the disease is unfavorable in view of the certainty of recurrence of the attack

in the course of time. It is favorable for recovery from any particular attack. In typical cases there is but little mental deterioration even after the lapse of many years.

Treatment.—Much may be accomplished by persons predisposed to the disease by leading a quiet, carefully guarded life under favorable conditions, and abstaining absolutely from the use of alcohol.

In the treatment of the patient during the manic attack it is essential to remove all forms of external excitation. If mental activity runs high, confinement to bed and in many of these disturbed cases the prolonged warm bath gives good results. They should be guarded against exhaustion. To this end care should be taken to see that sufficient food is taken and prompt recourse had to artificial feeding if necessary.

In the depressed stages, as the general health is apt to be much disturbed, care must be taken to sustain the patient by rest in bed, sufficient food, and by attention to the emunctories and other bodily functions.

(b) **Paranoia.**—Paranoia is a chronic progressive psychosis occurring mostly in early adult life, characterized by the gradual development of a stable system of delusions, without marked mental deterioration, clouding of consciousness, or disorder of thought, will, or conduct.

Etiology.—The disease is rather uncommon. Men are more often afflicted than women. The disease usually begins between the ages of twenty-

five and forty. A defective heredity exists in a very large percentage of the cases. One suffering from paranoia is from childhood somewhat peculiar. He may be bright and receptive in certain ways, may learn readily at school, but with it all shows eccentricities of conduct, is conceited, self-centred, and he develops unsymmetrically. Many show stigmata of degeneration. Some exciting cause usually forms the starting-point of the disease, such as an acute illness, excessive mental strain, shock, business reverses, deprivation, and disappointment.

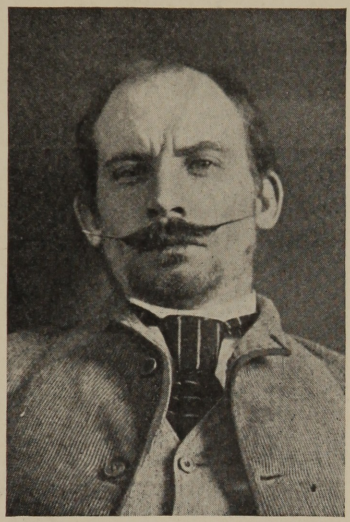


FIG. 54.—Typical paranoia: delusion of persecution.

Symptoms.—The development is very gradual, extending sometimes over years. During this period it may have been noticed that the patient had changed in disposition, having become somewhat irritable, grumbling, discontented, and suspicious. Mental depression may proceed to a considerable degree. There arise in him vague ideas of conspiracy and distrust, in which he feels that there is a disposition on the part of

others to deprive him of his just rights, such as his property or business. This is called the "persecutory stage" (Fig. 54).

Sooner or later, in connection with the delusion of persecution, there may also appear expansive delusions. They may be coincident with the persecutory ideas, but more frequently they are the outcome of the delusions of persecution.

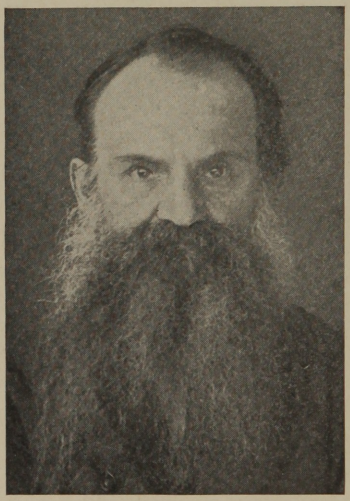


FIG. 55.—Paranoia, religious type.

Some event may occur in the patient's life, a visual hallucination, a vivid emotional experience, a dream, a chance circumstance, a casual remark by another, or the encounter of a passage in reading, which may furnish to the patient a key or clue to the mysteries surrounding his past career. He begins then to see that things have been planned out for him from the beginning; that he was to be brought up by those claiming his parentage to conceal his birth; that he is a prophet or some great personage. He now sees the reason he has been persecuted in the past. It has been, he reasons, because of the envy of

others, or because those who knew of his mental gifts or his true social position desired to keep him from coming into his inheritance.

It is not difficult to see in this description the celebrated cranks of the world. The usual quiet conduct, the continued application to business, the ability to converse well on current topics, the good memory, the logical methods of thought, frequently deceive as to the true condition of the patient.

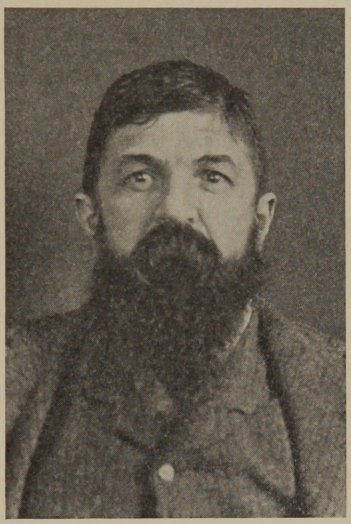


FIG. 56.—Paranoia, erotic type.

As a matter of fact, the so-called crank of this description constitutes a dangerous element in society. He is apt to make sudden homicidal assault in consequence of his delusions. Many of the assassins of distinguished persons have belonged to this class. As examples: Guiteau, the assassin of President Garfield; and Prendergast, who killed Mayor Harrison, of Chicago. In hospitals for the insane, these patients are often very well disposed and able to control unpleasant characteristics. They accept their

confinement as a part of the scheme in their lives, believing that some good may eventually accrue to them or to the world in consequence. They often show a sort of proprietary interest in the institution, and are useful in various lines of work.

An erotic element often appears in the delusions, which in some cases may be so pronounced as to lead to the designation of an erotic paranoia. Likewise, a dangerous tendency may be called homicidal paranoia, or a religious coloring religious paranoia, or a strong bias to go to law establishes a litigious paranoia (Figs. 55, 56 and 57).

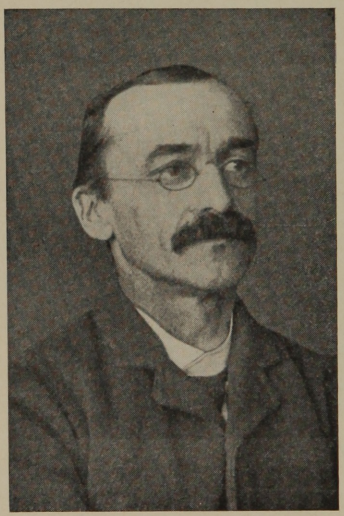


FIG. 57.—Paranoia, litigious type.

Hallucinations are always present at some time, but rarely persist through the whole course of the disease. Hallucinations of hearing are the most prominent. Hallucinations of sight are rare, but those of general sensibility are quite frequent.

The *course* of the disease is protracted. At first there is the prolonged period of insidious onset, followed by the persecutory period with the development of delusions of persecution with

hallucinations, and finally the ambitious period accompanied by a change of the personality. The patient does not deteriorate rapidly, in most cases the disease seems to be at a standstill for many years.

There is no tendency to suicide. The habits are tidy.

The *prognosis* of the disorder is very bad, as no genuine case ever recovers.

As may be inferred, there is no medical *treatment* for the disease. In cases where the violence of the reactions is marked, commitment is usually necessary. The treatment is naturally limited to the removal of irritating influences and outdoor life with ample occupation.

CHAPTER XVII

8. CONSTITUTIONAL PSYCHOPATHIC STATES

(a) **Mental Instability.**—The psychopath usually presents a more or less pronounced state of mental debility, weakness of attention or of memory, sluggish formation of association of ideas, and poverty of imagination. He does not see things in their proper light, hence his singular notions, his paradoxes, his ridiculous enterprises. In some cases, some of the aptitudes of mind may be normal or even brilliant, *e.g.*, memory, imagination, or artistic talents. In brief, the psychopath is a person mentally unbalanced. This is shown conspicuously in the extreme mo-

bility of his emotional nature. He passes alternately from excessive joy to extreme distress, from feverish activity to profound discouragement, from affection to hatred, from complete egoism to exaggerated generosity and devotion. His conduct also is full of contradictions, showing insufficiency of judgment and instability of the emotions.

The mental peculiarities are almost constantly associated with physical anomalies, which are known as the physical stigmata of degeneration. The principal physical abnormalities are: cranial malformations, craniofacial asymmetry, harelip, dental anomalies, anomalies of the external ear, irregular pigmentation of the irides, strabismus, malformation of the external genitals, infantilism, and anomalies of the limbs and hands and feet.

(b) **Anomalies of Sexual Function.**—We usually distinguish: Anomalies of *degree*, eroticism, and frigidity; anomalies of *nature*, sexual perversion, and sexual inversion (Fig. 58).

(c) **Obsessions.** — Obsessions are persistent ideas, emotions, impulses that intrude themselves at inopportune times and occupy the field of attention to the exclusion of other ideas. They are sometimes spoken of as besetments. An obsession is constituted by an "imperative idea,"[1] with a state of anxiety, there being no marked disorder of the intellect.

[1] Because of this element in the obsessed state that impels to action, these conditions are often referred to as imperative ideas or concepts.

In the mild forms they are common and occur not infrequently in normal persons. We are all familiar with the tendency of the constant recurrence in the mind of a tune that "runs in the head" after attendance at a concert or listening to the Victrola. Then there is the more pronounced case of the person who goes to bed but is anxious for fear he may not have locked the front door. Before he can settle into sleep he is forced to go down to test his doubt.

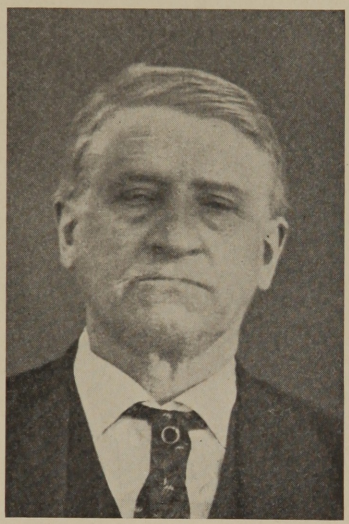


FIG. 58.—A noted case of sexual perversion, who appeared for thirty years in female attire.

Obsessions are of various forms. There are three great classes to be distinguished, depending upon the influence that the imperative idea exercises upon the patient: (1) Intellecual obsessions, which are unaccompanied by any voluntary activity; (2) impulsive obsessions, in which the idea tends to be transformed into an act; (3) inhibiting obsessions, the action of which tends to paralyze certain voluntary acts.

1. *Intellectual Obsessions.*—In this form the

mind of the patient is occupied either by some concrete idea—such as a word, an object, an image of some person or of some scene—or by some abstract idea—such as life, the Deity, etc. Sometimes the imperative idea takes a negative form, and in other instances it is expressed by doubt, thus constituting a transitional form between intellectual and inhibiting obsessions.

2. *Impulsive Obsessions.*—These are very numerous. The following are some of the principal forms:

Onomatomania: a persistent desire to pronounce certain words, sometimes obscene words (coprolalia). Associated with a tic, coprolalia constitutes the "disease of convulsive tics" (the disease of Gilles de la Tourette).

Arithmomania: a persistent desire to count certain objects, add certain figures, etc.

Kleptomania: a morbid impulse to steal objects that are entirely useless, or which the subject can easily pay for.

Dipsomania: a morbid craving for alcoholic drink, occurring in a person of temperate habits. He differs radically from the ordinary drunkard. "The one is alienated before beginning to drink, the other (the alcoholic) becomes alienated because of his drink" (Magnan).

Pyromania (Fig. 59), suicidal and homicidal impulses: These three obsessions are of equal gravity from a social stand-point, and may be placed in the same group. The first consists in a morbid impulse to set buildings on fire; the other two need not be defined.

Sometimes these patients obey their fatal impulses, but such cases are rare. Usually the patient is able in some way to resist his impulse.

Similarly, it is very rare for patients to yield to a suicidal impulse. The means they take to escape their obsession are innumerable.

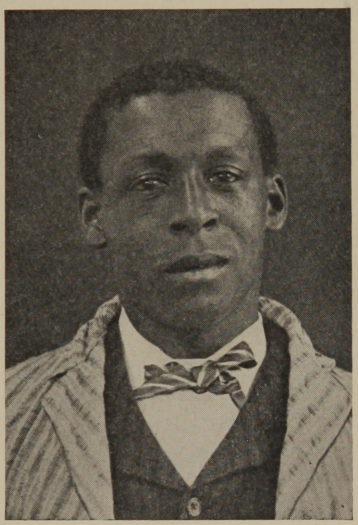


FIG. 59.—A case of pyromania.

As to family suicide, it is almost never the result of an obsession, but of a fixed idea which is developed from example.

3. *Inhibiting Obsessions.*—This also assumes many varied forms.

One of the most frequent is the "doubting mania." Its characteristic feature is the inability on the part of the patient to affirm a fact or to make a decision.

Many normal persons experience this phenomenon in a slight degree. At the borderland of doubting mania we find persons who hesitate before mailing a letter, in spite of having already several times verified the contents, the address, the closing of the envelope.

Doubt is likely to assume the form of scruples, so frequent in religious persons; a fear of profaning sacred things, of not being in a holy state of mind, etc.

Closely related to doubting mania are the phobias, or morbid fears.

One phobia is "delire du toucher," where the patient dare not touch any object for fear of contamination or fear of contracting an infectious disease. Some patients wear gloves and wash their hands many times a day.

Agoraphobia, in which there is great fear of public places; claustrophobia is the opposite, when the patient is unable to remain in a closed space.

Prognosis and Treatment.—Considering the neuropathic basis of the symptoms, the outlook for a speedy recovery is hardly to be expected in the majority of cases. The main bearing of treatment is on psychotherapeutic lines. To carry it out efficiently requires the most detailed regulation and re-education of the mental life.

9. PSYCHOSES BASED ON NEUROSES

(a) **Epileptic Psychosis.**—Epileptic psychosis is a complex accompanying epilepsy, characterized by a varying degree of mental deterioration shown by impairment of intellect and to less degree of memory; emotional irritability, impulsiveness and incapacity for useful employment (Fig. 60).

Etiology.—Defective heredity is the most prominent cause of epilepsy. Head injuries are

sometimes assigned as the cause as well as alcohol. Epilepsy often appears for the first time during the period of development.

The most conspicuous feature of the disease is the spasm or fit.

Nature of Attack.—The fit may be divided into three stages: (1) convulsion, (2) coma, (3) semi-conscious condition.

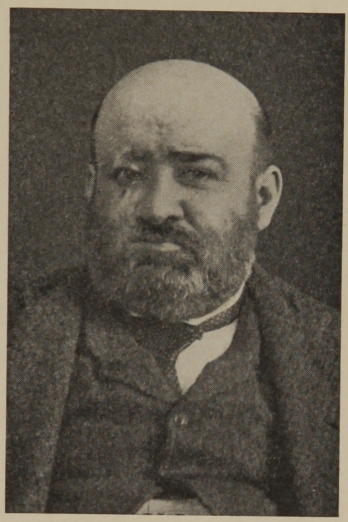


FIG. 60.—An epileptic, disfigured by falling into the fire during a fit.

1. *The Convulsion.*—The convulsion is ushered in frequently by precursory symptoms, acting as a warning; or the patient may fall suddenly and be seized by convulsive movements, usually starting from a particular part of the body but instantly becoming general. Consciousness is at once lost. The respirations are explosive, the veins about the neck become swollen and turgid, the face livid, the pulse quickened, and the pupils dilated. The spasm is at first tonic (holding the muscles rigid), and after a brief period it assumes the clonic stage when the body and limbs are spasmodically jerked. The convulsion lasts for

a few moments to a minute or so, ending in the second stage.

2. *Coma.*—In this stage the patient lies in a quiet state. The respirations are labored. There is stertor or loud snoring, accompanied by strong expirations with puffing out of the lips, and the escape of frothy mucus from the mouth, often stained with blood. The face becomes less livid as the respiration and the circulation improve. Finally the patient passes into a deep sleep, or he may quickly recover. The duration of this stage may vary from a few minutes to several hours.

3. *Semi-conscious Stage.*—Following the second stage usually there is more or less confusion of mind. The patient walks about seemingly in quest of something, pulls at things near by, talks in a dazed way with little or no recollection of the event afterward. He may or may not recognize the occurrence of the fit.

The mode of onset may be (*a*) sudden, or (*b*) preceded by a warning.

(*a*) Sudden. The patient falls forward suddenly without warning. On account of the beginning rigidity of the body, the patient is precipitated heavily forward upon his face, unlike fainting, when the person sinks down in a relaxed state.

(*b*) With warning. In this case, the fit is preceded by a warning usually described as an aura. The patient is apt to scream, run, grasp the nearest person, or object. The sensation, as described

by the patient varies in character. It is not unusual for him to liken it to a puff of wind or breeze, hence the term *aura*. The sensation may begin in the foot, hand, stomach, or chest, and it quickly traverses the body, and upon reaching the brain unconsciousness and the convulsion result. It is not unusual for hallucinations of sight and smell to occur, and less frequently of hearing.

Two types of epileptic convulsions may occur: (1) petit mal; (2) grand mal.

(1) Petit Mal. In this type there is but momentary loss of consciousness; there is no spasm and the patient does not fall. The attack lasts but one or two seconds and it is apt to occur frequently. The integrity of the mind generally suffers more in this form, giving rise to intellectual enfeeblement sooner than in the second form.

(2) Grand Mal. This is the term applied to the ordinary falling fit. This type is marked by various characters in different persons. The patient may have isolated fits, or they may be scattered at nearly equal and comparatively long and short intervals.

In either type, if the fits occur only in the daytime, they are called diurnal; and if they occur only at night, they are then called nocturnal.

Status Epilepticus.—This is a serious condition which may occur in epileptics. It is a condition in which many convulsive seizures occur in such quick succession that there is no return to con-

sciousness between them, the patient remaining in a deep coma when not convulsed. The fits may occur every few minutes, so that a hundred or more may occur within a few hours. In some cases the temperature may reach 105° just before death. The condition is always very grave, and from failure to take food and the exhaustion of the attack, it is liable to prove fatal.

Epileptic patients are generally tidy, excepting when they become much demented and in the confusional state at the time of a convulsion. At such times they are apt, through inattention, to be the exact reverse.

In the furor of these attacks they are apt to be extremely dangerous, with strong homicidal and suicidal tendencies.

Psychic Epilepsy.—Mental and emotional disturbances may appear in the intervallary periods, entirely independent of the convulsions, and are then called "epileptic equivalents," or psychic epilepsy. These attacks frequently take the form of so-called epileptic automatism or epileptic dream states. In this condition the patient may do almost anything and when he comes to himself he has no recollection of what has happened. Usually the attacks are of short duration and the acts rather simple. However, they may last for days, all sorts of things may be done, crimes may even be committed. In the latter case, these crimes of violence are often noted for their ferocity and brutality.

Conscious delirium is a rare form, which either

follows a seizure or appears as a psychic equivalent. Patients appear from their conduct to be conscious, but in reality apprehension is greatly clouded. Attacks of conscious delirium may last for days, weeks, or even months. Some instances of sudden disappearance from home are of this nature, the subject being found in the course of time in some distant part of the country.

Statistics of Epilepsy.—As to frequency in the general population, it occurs in about one person in five hundred inhabitants. As to sex, it is more prevalent in the female; the proportion is six females to five males. In respect to age, 75 per cent. of the cases occur before the age of twenty years; 50 per cent. between ten and twenty years, and twelve out of one hundred cases begin during the first three years of life. It is, therefore, a disease of early life. Rare cases, however, occur among adults, even as late as sixty years. When simple, idiopathic epilepsy develops in the adult it will usually be found, upon close examination, that convulsions have occurred during infancy or childhood, as the accompaniment of teething, worms, etc.

Thirty-five per cent. of the cases of epilepsy are due to heredity.

As is well known, the prognosis of the disease is bad.

Termination and Treatment.—Epilepsy tends, in many cases, to produce a general mental deterioration, ending in dementia of varying degree. The treatment is similar to epilepsy.

When dangerous tendencies are encountered suitable provision should be made for the safety of the patient and others.

(b) **Hysterical Psychosis.**—Hysterical insanity (Fig. 61) is to a great extent a degenerative one, proceeding from hysteria, or colored by it in such a way as to be clearly distinguishable from other similar conditions of different origin or complication. It is characterized by great instability of the emotions, defective will power, and heightened self-consciousness, upon which may appear *crises* or attacks.

FIG. 61.—Hysterical psychosis (Weygandt).

Etiology.—The most prominent cause of hysterical psychosis is heredity. In nearly every case there is a history of neurosis, insanity, or intemperance, and very often a direct heredity of hysteria. Aside from this, trauma may be considered the most efficient cause. Other causes, such as ex-

hausting sickness, toxæmia, shock, etc., are probably only effective as secondary to predisposition or heredity.

Symptoms.—Impulsiveness, unreasonableness, extreme selfishness, excessive sexuality, suggestibility, illusions, hallucinations and delusions,

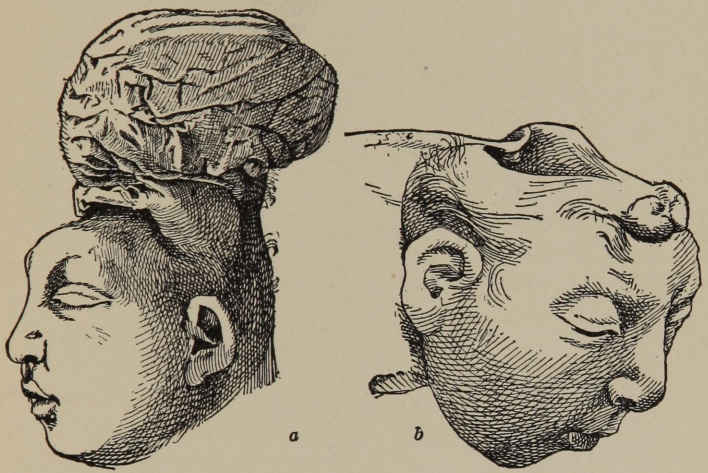


FIG. 62.—Monstrosities or monsters. (*a*) exencephalic; (*b*) anencephalic; a grade below idiocy; not capable of living (Ziegler's Pathology—Wm. Wood & Co.).

especially in reference to the visceral area. The earmarks of hysteria can often be found, such as facial anæsthesia; tremor of the closed eyelids; tenderness under the left mammary gland, at the epigastrium, over the left ovary, and limitation of the field of vision.

Hysterical psychosis is very frequently recurrent, the attacks occurring at intervals under

special conditions, such as at menstrual periods. It may take either the maniacal or the melancholic form, each colored by the general pre-existing neurosis. In other cases there may occur trance conditions and catalepsy.

The most typical form of hysterical psychosis is the hysterical reasoning mania. These patients are egoistic to the extreme, and are most annoying to those who have to care for them. They are excessively notional and full of projects; they often show a marked and perverted sort of religiosity. Many of the cases of blackmail and false accusations against physicians may be credited to this form of derangement in women.

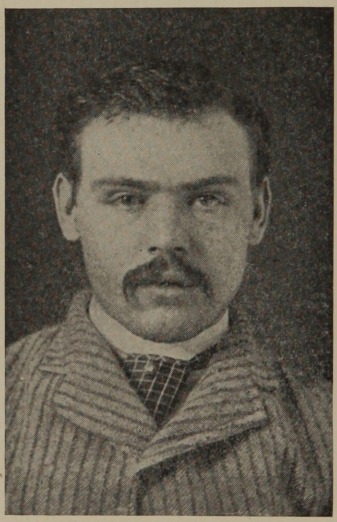


FIG. 63.—High-grade imbecile.

The *prognosis* of the acute attack is generally favorable. Considering the disorder as largely a degenerative psychosis, the prospect of a complete and permanent recovery is not always hopeful.

In the *treatment* of these cases much depends upon the personality of the physician and the nurse. Isolation is required and attention should

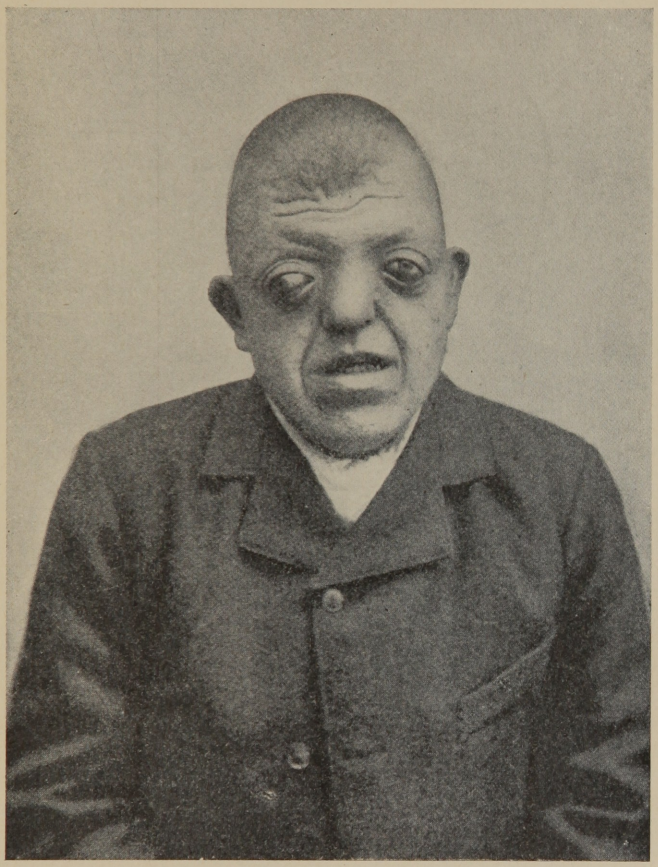


FIG. 64.—A case of microcephaly in a genetous idiot (Ireland).

be given to any disturbances of the digestive system, the kidneys, heart, lungs, and pelvic organs. The daily routine should be one of

FIG. 65.—Hydrocephalic idiot (Ireland).

activity, alternating with rest and relaxation, including massage, gymnastic and outdoor exercise. Hypnotism is of limited value and even when tried should be entrusted only to competent hands.

10. DEFECTIVE MENTAL DEVELOPMENT

Idiocy and Imbecility.—Under this heading are described those mental states which are the result of an incomplete or early interrupted development of mental life. As distinguished from the process of mental deterioration, these states may be regarded as conditions of arrested mental development.

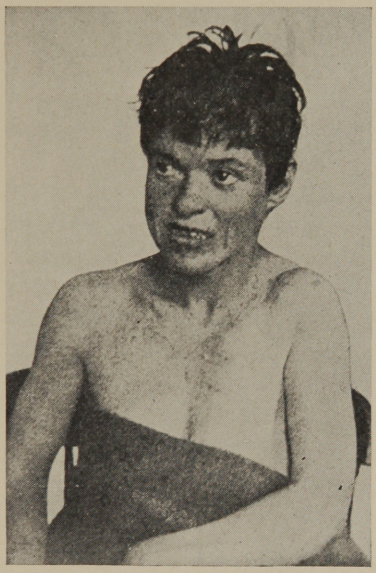


FIG. 66.—Epileptic idiot (Berkley's Treatise of Mental Diseases—D. Appleton & Co.).

These various defective conditions have been classified under the following headings:

Feeble-mindedness.—A condition of slight mental defect, capable of much improvement by educational methods.

Imbecility.—A condition of mental deficiency, which can be materially improved by training, but not sufficiently for the subject to take a place in the world (Fig. 63).

Moral imbecility is a condition of mental defectiveness which is shown predominantly in the absence of the higher functions of mind, partic-

ularly in a lack of moral sense, which renders the subject a menace to society.

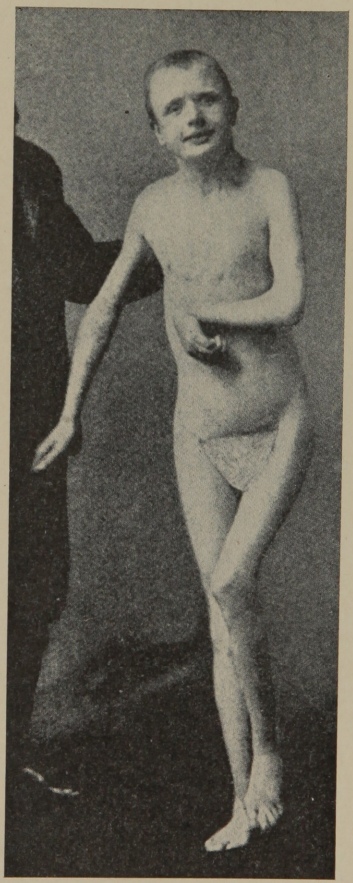


FIG. 67.—Paralytic imbecile (Ireland).

Idio-imbecility is a condition midway between idiocy and imbecility.

Idiocy is a condition of profound mental defectiveness. The lower grades are unteachable, while the higher may be trained slightly in self-help—attention to personal habits.

In accordance with the results attained by the Binet-Simon measuring scale of intelligence, an idiot possesses a degree of mentality that does not go beyond the normal child of three years; an imbecile possesses a degree of mentality that does not go beyond the normal child of seven years; a so-called Moron

possesses a degree of mentality that does not go beyond the normal child of twelve years.

Etiology.—The causes are numerous and varied. Heredity is found in a large proportion of the cases. Idiocy may be regarded as the final stage of hereditary degeneration. Accidents and injuries, especially those associated with prolonged labor and instrumental delivery, are common causes. Diseases involving the brain are also potent causes. Alcoholism in one or both parents, and any infection, including syphilis, or debilitating conditions of the parents, are important.

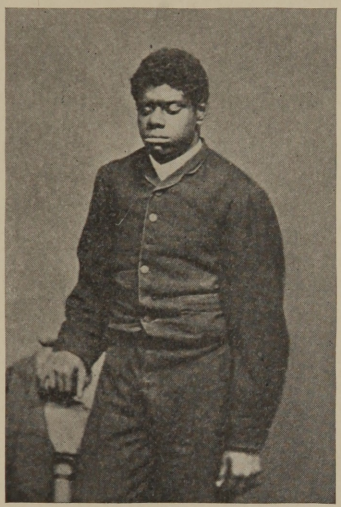


FIG. 68.—Blind Tom, idiot-savant.

The common clinical types are as follows:

Genetous Idiocy (Fig. 64): This term is used to comprehend all those cases which, starting in fetal life, cannot be traced to any special disease.

Microcephalic Idiocy: The noticeable feature in this type is the smallness of head; heads below seventeen inches in circumference are said by good authority to belong to this class.

Hydrocephalic Idiocy (Fig. 65): This is the abnormally large head type. The size of the head is not due to increased quantity of brains but rather to a considerable increase of the cerebral fluid, both subarachnoid and intraventricular.

Cretinism (see Thyroigenous Insanity).

Epileptic Idiocy (Fig. 66): Epilepsy occurring before seven years of age is certain to leave the patient weak-minded. This designation should be confined to those cases where the idiocy may reasonably be supposed to depend on the epilepsy.

Paralytic Idiocy (Fig. 67): The origin of the paralysis may be from some vascular lesion, or may result from lack of development, or from inflammation of one side of the brain. Injuries occurring before, during, or after birth may prevent further development.

Sensorial Idiocy; Idiocy by Deprivation: This form results when a child is deprived of two or more of the principal senses, such as sight and hearing.

Idiots-Savants (Fig. 68): These are rare. Although undoubtedly mentally defective, they have some special aptitude wonderfully developed. It may be music, calculation, memory for certain variety of facts, etc. As an example may be mentioned "Blind Tom," the musical genius.

Prognosis and Treatment.—Arrests of development are infirmities and not diseases; their prognosis is, therefore, grave. Under these conditions the only hope of favorable influence upon the subject is education under special methods and chiefly manual.

PART FIVE

CHAPTER XVIII

The Patient from the Physician's Viewpoint

It may be observed generally that the personality of those with whom we associate is admittedly of great influence upon us. In health, and still more in sickness, we are strongly drawn toward some, and toward others we have a feeling of indifference. Usually one's likes and dislikes control him markedly as they relate to his attitude toward his fellow-men. There are some persons to whom one becomes instinctively attached, while others naturally repel. Toward the former at once springs up a bond of sympathy and with the other no feeling of friendship is aroused. Some men carry conviction in their conversation, while the opinion of others is entirely unheeded.

Some physicians have the gift of magnetism, by which they inspire hope and confidence in their patients. Nervous invalids feel better for seeing them, and their presence imbues them with new life. The physician should remember that the patient often watches his every word and action, which becomes a subject of earnest thought when he is gone.

Not that the patient believes everything he is told, but between two physicians the patient

may confidently believe what is told him by one and carelessly regard what is said by the other, through lack of confidence. Human nature runs through all, and we sometimes make the mistake of not treating the insane man with as much consideration as we would were he sane, not listening with interest to what he may say.

Courtesy of National Committee of Mental Hygiene.

FIG. 69.—Dr. Pinel at the Salpêtrière Hospital, Paris, 1793. The dawn of humane treatment.

To be successful in the treatment of the mentally afflicted the physician should possess special endowment. In the first place, he must learn to be patient in his relations to the sick-chamber, a quality he should early seek to acquire, if he does not already possess it. Without infinite patience he could scarcely expect to succeed, for

instead of doing the invalid good he would only do him harm. He also should have the ability to make the patient feel that he takes an interest in him; not a sham interest, but one that is genuine and which springs from sincere sympathy for the afflicted. Such a course will inspire the patient with confidence and assure him that his case is understood.

Furthermore, the physician should make his directions clear and explicit, so there may be no doubt concerning them. Hence, he should exercise firmness, so far as the management of the case is concerned. In matters of little moment he may safely grant concessions to save unnecessary friction. The physician knowing his advantage should be most careful that he does not exercise it in a way to make it an abuse of power. Kindness and thoughtfulness are always appreciated by the afflicted, and they go a long way to sustain pleasant relations between him and his medical adviser. All reasonable grievances made by the patient should receive close attention that justice may be done him.

It is a good rule to treat the patient in one's intercourse with him precisely as one would were he sane. All promises are to be kept in good faith, and none made that are not intended to be granted. At times one may have to disagree with the patient; when circumstances make it necessary it should be done with kindness but at the same time with firmness, explaining to him that only for a time shall it be necessary

for him to be under medical supervision and that his physician shall be equally pleased when he can again resume control of his own affairs.

Dealing with the delusions of a patient is often a delicate subject. It is generally wise that each case be considered and studied individually, for they differ widely. It is usually safe to allow the patient to express himself freely; sometimes he may be frankly combated, at other times it may not be safely done without incurring the ill-will of the patient, which would be disastrous to one's influence with him. At the time of convalescence, however, a little counsel and advice from the trusted physician serve further to clear the clouds already beginning to lift from the mind.

Some discipline frequently is proper to curb evil propensities, especially when harm may come to other patients. But punishment, itself as such, should never be inflicted upon a patient. The enforcement of rules or the deprivation of privileges may need to be insisted upon in individual instances; it should not at all be regarded as punishment, but only wholesome checks temporarily made for the benefit of an erring person. Under no circumstances is it justifiable, in prescribing discipline, to deprive a patient of any of the necessities of life in the way of food or other essentials to health. Luxuries and pleasures may be stopped, but not actual necessities.

The patient's surroundings should be made as

bright and cheerful as possible. He should be provided with everything within reason to make his life pleasant and comfortable, conducing not only to his welfare, but to his recovery. Occupation, diversions, and regulated exercise, both in and out of doors, are mentioned elsewhere as contributing means to this end.

The several types of mental disease have for the most part characteristic symptoms, course, and endings, and they usually require to a certain degree special treatment. On the other hand, they have also many features in common in management and treatment. In the following summary of treatment the general features that are thus found in all of them shall receive *seriatim* our attention.

The chief mental indications to be inquired into are: prophylaxis, convalescence, hydrotherapy, rest, insomnia, and hypnotics; the management of patients respecting food, administration of medicine, exercise, occupation, diversion, personal attention, and nursing; suicidal and dangerous tendencies, correcting bad habits and controlling morbid impulses, and seclusion and restraint.

Prophylaxis.—The preventive treatment of mental disease covers a wide scope of activity, and the field is widening as the years pass. There are difficulties which beset the way, because the personal equation, or the individual constitution, is so difficult to gauge. What is good for one, to adopt the old saying, may be poison for another.

The most fruitful source of dissemination of mental disease is the propagation of insanity by heredity transmission. The liberty of the individual, notwithstanding the fundamental doctrine of personal liberty, is subject to the good of the many. The "right" of the thief to misappropriate, or the murderer to kill, has long

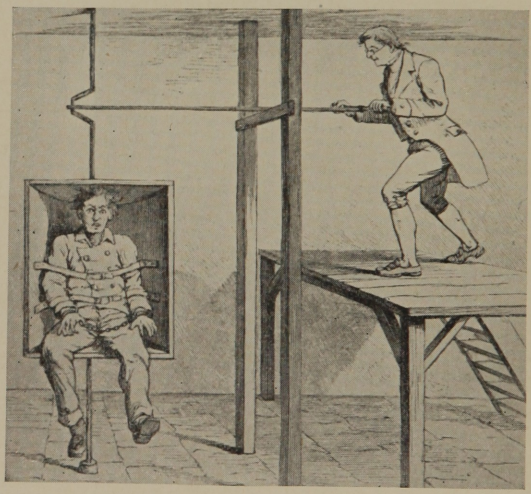


FIG. 70.—Dr. Rush's "tranquilizer"—old method of "treatment," 1813.

since been denied. The time seems nearly at hand when stern measures shall be taken to deny the right to the insane, epileptic, or alcoholic to beget or bear children, for the reason that most of the insane are children of degenerate parents. To some this may seem a harsh assertion, but desperate diseases call for desperate remedies.

We make salutary provisions to avoid the risk of infection by physical ills,—why not take steps to protect society from the dangerous infection of the degenerate? In the past there has been the excuse of ignorance; this plea is no longer permissible.

There are other means of preventing the development of mental disease. Emphasis should be laid upon the importance of the education of the young on rational lines of mental evolution. By all means let the equipment of the child be thorough, but let him be trained in a measure to promote a steady growth and to insure a high degree of stability at maturity. At the period of puberty, he should be jealously guarded more than ever against injudicious forcing and cramming of competitive scholarship. Physical exercise should be maintained at a point to escape the evil effects of excessive bodily fatigue. Suitable clothing should meet the varying conditions of the season; late hours, so conducive to insomnia, should be avoided. Work and play need to be adjusted in right proportion, and a wholesome, nutritious diet, not too highly seasoned, suited to the requirements of the developing youth. His life must be a happy medium between the Scylla of over-exertion, over-discipline, over-study, and the Charybdis of the antithesis of these evils.

If the subject is known to be predisposed to insanity, his education and training call for very special care in order to overcome the inborn

tendency. It will be found that patience, persistent command of temper, self-denying industry, and much knowledge of child nature are necessary. As to choice between home and school treatment, no general rule can be laid down. Some do better at home, some do better at school. It may be that the parents are unsuited to rear the child, and its receptive mind is harmed by such association. The selection of the proper person to carry out wise plans is a most important factor. In this connection the kindergarten may form an important adjunct, where the young child may be removed, for part of the time at least, from harmful surroundings, and properly and healthfully trained. All this advice, and much more, is required to keep a sound mind in a healthy body.

The happiness and the success one eventually attains often depend largely upon the methods of training pursued in childhood and the way one is taught to meet the trials and disappointments of life. The disposition is moulded by habitual moods reacting repeatedly to every-day experiences. The emotional reaction which first occurs to any new experience tends to recur thereafter under any similar occasion. It is also a matter of observation that the character is moulded early in life. The thoughts and actions of the individual, the indications of character, early assume definite tendencies and form. The old saying, "As the twig is bent the tree inclines," has here its application. For instance, peevish-

ness and discontent breed jealousy and discord, and these in turn may develop into morbid suspicion and melancholy. Again, selfishness begets pride and inordinate self-esteem. These frequently form the basis of mental trouble that appears in the adolescent period.

Convalescence.—In convalescence, it is often a difficult question for the physician to decide when it is best for the patient to return home. It is a common mistake of the friends to urge his going sooner than it seems best to the physician, on the false notion that it may be an injury to him to remain among others who are similarly afflicted after he begins to come to himself. This is often a sad decision, for in acting upon it many cases suffer a relapse by going home earlier than they should go. After the first signs of returning mental health appear, an interval of time is necessary to enable the mind to adjust itself before the normal habits are resumed. Oftener harm is done by a too speedy return home than from the opposite course.

The return to home life and its duties should be a gradual process, which often may be interrupted by a short sojourn at the seashore or in the mountains. Before the patient passes from under the immediate charge of the physician he should explicitly advise him as to his subsequent mode of living with a view of preventing a return of the disease.

The question is frequently asked, Should the patient travel? I believe it is generally better

for the convalescent patient than for the threatened patient—at the end rather than at the beginning of an attack. Change of scene may do good, but constant change of scene, with its labors, vexations, and trials, especially in a foreign country, may do much harm. But when travel seems best in particular cases, it should always include provision for care and protection and the right admixture of exercise and rest.

Among the chief symptoms that predict a favorable outcome in mental cases may be mentioned: a return to the normal mean average bodily weight; the recovery of the natural facial expression and appearance; the revival of natural affections; a renewed interest in the patient's own personal appearance; the reëstablishment of natural sleep; and the realization and recollection of having been ill. So significant at this stage is the sign last given that one should view with grave misgiving the genuineness of convalescence when a patient, who otherwise appears to be well, denies in a positive manner that he has been in mental disrepair.

Hydrotherapy.—Water in the form of hydrotherapy has a wide range of application in the treatment of mental and nervous diseases.

In late years its vogue has been large, because it can be utilized either as a stimulating or a sedative agent in many forms of relief. It is chiefly used in three ways: the prolonged bath, the douche and needle baths, and the wet pack.

The Prolonged Bath.—Tubs for continuous

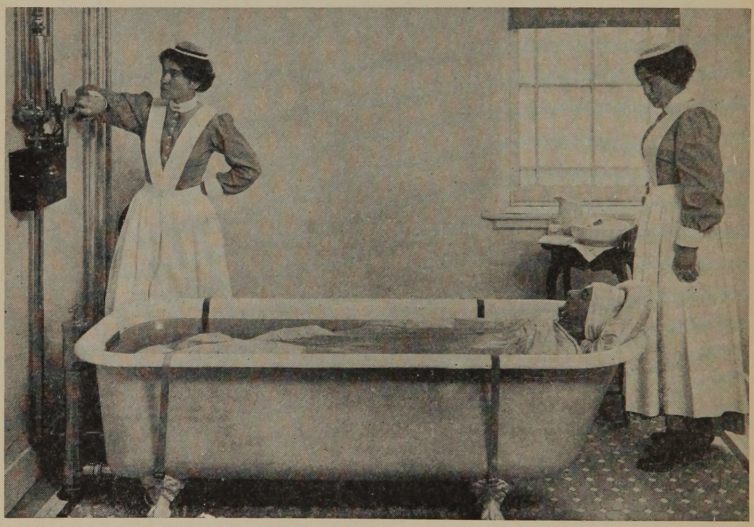
bath treatment are of special design and so constructed that the temperature is maintained by a small, continuous, gentle, flowing stream of water through the tub. The patient is first given a short, cleansing bath and dried thoroughly with a warm sheet. His body is then anointed with lanolin or vaseline to prevent wrinkling and peeling of the skin, especially of the palms of the hands and soles of the feet.

The patient is then placed in the bath, the body resting upon the canvas cradle, the head supported by a rubber ring or pillow, the chest and shoulders being kept entirely submerged. Cold cloths may or may not be applied to the head as directed by the physician (Fig. 71).

The tub is covered with a sheet or blanket, reaching to the patient's neck; this protects the patient from exposure and prevents the surface of the water from cooling by evaporation. Usually the temperature of the bath should be maintained at 96° to 98° F. In beginning a course it is well to graduate the length of time in the bath; starting, say, at half an hour for the first day, one hour the second day, two hours the third, three hours the fourth, and so on until a maximum of six or seven hours is reached. Under this *régime* the excited patient gradually becomes calm and the agitated one more restful. He should be attended by a sympathetic nurse, who should never leave the bathroom unless a relief nurse is substituted. After the bath he should be thoroughly dried in a warm sheet with-

out friction, put into dry clothes, and returned to bed. As the patient improves the duration of the bath should be gradually diminished.

The Douche and Needle Baths.—The needle spray and douche receive their water supply at the desired temperature and pressure direct from



Courtesy of National Committee of Mental Hygiene.

FIG. 71.—Patient in continuous bath of tepid water.

the "controller table" of the hydriatric room.

Before "douches" are administered it is necessary to prepare the patient's skin by warming, even to the point of perspiration. This is usually done by use of the hot-air cabinet or the electric-light cabinet. This preparatory treatment is administered in a room adjacent to

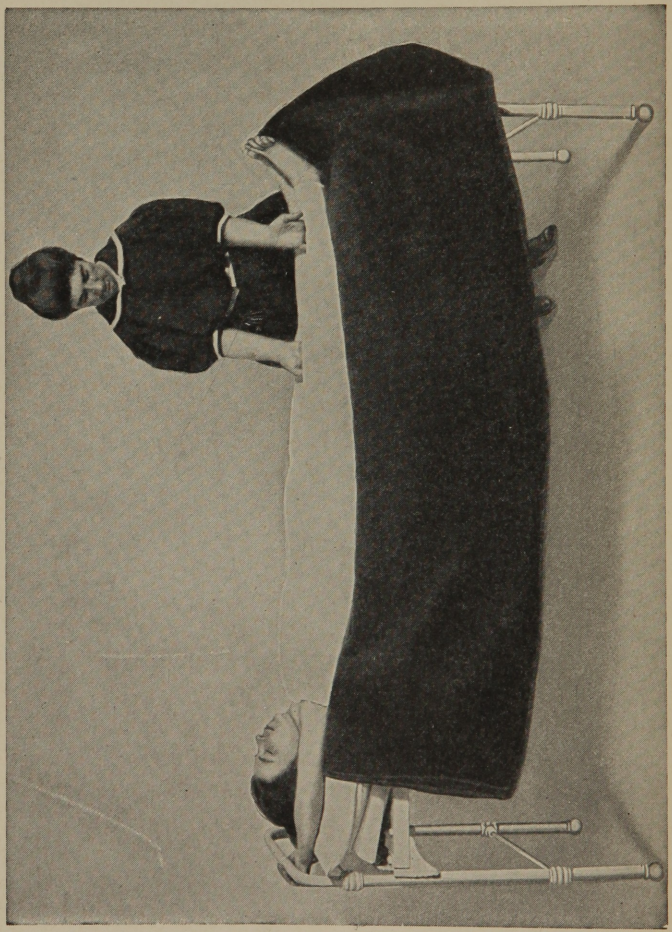
the hydriatric room, so that the patient can be brought to the bath without being chilled in route.

The temperature of the air in the cabinet should be between 120° and 150° F. The patient remains in the cabinet from five to ten minutes, according to whether or not perspiration is to take place. The electric-light cabinet is the most agreeable means of giving dry heat.

Before entering the cabinet the patient is required to drink half a glass of water. Towels of suitable size, wrung out of iced water, are placed about the patient's head and neck before he enters the cabinet. These are changed as frequently as they become warm. The cabinet is constructed with a "neck opening" so that the head protrudes from the cabinet and the patient breathes the air at the temperature of the room.

Almost any effect, either stimulating or sedative, can be had by the needle spray and douche according to its application. They are potent agents and should not be employed if the patient suffers cyanosis or œdema of the hands and feet, nor before general nutrition of the patient has been considerably improved.

The Wet Pack (Fig. 72).—In this method the patient is first wrapped in a linen or soft cotton sheet which is wrung out of water at a prescribed temperature. Water between 60° and 70° F. is generally employed. For delicate, timid persons, the neutral pack, water at 90° to 98° F., is used.



Courtesy of J. B. Clow & Sons.

FIG. 72.—The wet pack.

After the patient's timidity is over the temperature may be gradually lessened day by day, in accordance with his vigor. The sheet is held snugly against the body by enveloping blankets, systematically adjusted.

Technic.—A rubber sheet or oil-cloth is put on the bed, and over it one or more blankets. A sheet, which has been dipped in water of the desired temperature, is wrung out and spread on the blankets. The patient, whose clothing has been removed, is laid upon the sheet and every part of the body is covered by pressing the folds of the sheet down between the arms, body and lower extremities. The sheet is tucked well in at the neck and feet; the first blanket is then folded over and tucked evenly under the patient on both sides. The feet are lifted and the corner ends of the sheet and blanket are tucked under them.

At this juncture apply small towel compresses wrung out of ice water to the back and sides of the neck and to the forehead, applying the neck compress first. These should be changed as often as they absorb heat.

Envelop the patient in the second blanket in the same manner as the first, adjusting each half alternately when using two or three blankets.

After reaction, and the patient feels comfortable, it is desirable in order to prevent him from becoming too warm to remove the outer blanket.

When administered for its sedative effect, the patient is kept in the pack one, two, or more

hours if comfortable or sleeping. When the treatment is given during the day, it is usually followed by a short neutral shower or tub bath. When it is given at night, the patient is removed from the pack at the end of two hours, dried in a warm sheet without friction, dressed in a warm night-robe, given a glass of hot milk, and put to bed.

Rest.—It may be laid down as a general rule, to which there are but few exceptions, that in undertaking the care of a mental patient the first thought is to secure rest for him. If it is a recent case more than ever is it necessary to have him put in bed, and remain there until there has been a decided improvement in his active symptoms. It is a common error to allow a patient who is fatigued in mind and body to tramp about with his nurse. At least several weeks should be consumed by rest in bed, or, if not in full, then partial rest treatment. It is curious that rest begets a desire for rest. In this way a habit of rest may be created and the disposition to restlessness overcome.

It may be found that rest is not the proper course in a given case, then some other scheme is needed. This is the case often in chronic mental disease, especially in delusional insanity. Again, rest in bed is not usually satisfactory with cases in which the mental disorder has been progressive for a long time. The greatest benefit from rest treatment will be seen in the care of psychomotor disturbances and in the several forms of depressed states. These patients should be kept

in bed continuously for some weeks, with careful attention to ventilation, feeding, and excretions. In suitable surroundings these patients are often benefited by the open air treatment in bed, which may be extended to the night as well as the day. After the patient has made some gain, he may be allowed to sit up for a few hours, after which moderate exercise, once or twice daily, may be introduced, until his strength has returned and with it a marked mental improvement.

In the place of partial rest in bed, as above described and modified to individual needs, we find in the milder mental cases, in the neurasthenic neuropathic conditions, usually defined as psychasthenias and neurasthenias, the full rest treatment may be applicable.

Full Rest Treatment.[1]—The patient is put to bed in complete isolation. Full feeding, gentle bathing, and massage are carried out elaborately and systematically. The nurse sleeps on a cot in the patient's room, and no one save the nurse and the physician has access to the patient. Of course, the nurse should be of the same sex as the patient, even in case of a male patient.

The patient is instructed to lie quietly, not to sit up, except to take food, and to leave the bed only for the purpose of emptying the bowels and bladder. Not only physical but mental rest should be enjoined; the visits of friends and letter writing are excluded.

[1] This system is commonly called the Weir Mitchell treatment, after its distinguished projector.

The diet is adjusted to exhausted states generally. A very moderate amount of food only is given at first. Often milk is given alone, from four to six ounces six times a day. In most instances some solid food can be given in the beginning. Of meats, the white meats usually are preferred. A choice of vegetables may be made from spinach, squash, stewed celery, and later from peas, string beans, etc. Eggs are not interdicted. For some time potatoes should be excluded, as well as wheat bread in any quantity. The neurasthenic should have a mixed diet, one that will furnish proteins, fats, carbohydrates, vegetable acids and salts. The full diet should be approached gradually. The milk should be increased by degrees until eight, ten, twelve or more ounces are taken six times a day.

If the details of treatment are properly carried out it will be found, if the case is favorable, that certain changes in the patient will appear. He increases in weight, the muscles become firm, the extremities cease to be cold, and he loses his extreme pallor. With the physical improvement the patient passes into a condition of calm and contentment. Nervousness and restlessness give way to an increased sense of well-being. Buoyancy, expectancy, and spontaneity displace the former state of fear, apprehension, and doubt, morbid ideas are crowded out, and the patient passes into the stage of full convalescence. The degree of success depends in a great measure

upon the degree of brain fag and upon the length of time it has persisted.

Insomnia.—Sleep is so important to health that a given space may be devoted to it. The ability to sleep well is one of the greatest blessings vouchsafed to man. Without sleep life becomes a burden and the living being who cannot sleep must surely die. So essential is it to life and mental integrity, the man who cannot sleep slowly degenerates and his mental powers gradually fail him. At first the higher functions of the mind are affected, but as time goes on the disorder spreads to the lower functions. The appetite fails and food is not assimilated. The various organs do not perform their apportioned work properly and the bodily health suffers. It may take years, unless the insomnia is profound, before life itself is threatened by lack of sleep, but the exhaustion continues until every organ of the body suffers from want of rest and eventually a complete breakdown ensues.[1]

Physicians generally do not realize the importance of sleep, and, therefore, do not give the subject the attention that should be given to it. They often fail to understand that sleep is a habit and one that needs to be zealously guarded. Even more readily than the appetite can the

[1] As a solace to the poor sleeper, it may be pointed out that Dr. Frederick Peterson, in an excellent article on sleep in the *Atlantic Monthly*, has recently confuted the theory so generally held, that "insomnia is more dangerous to life than starvation." It is not insomnia, he says, that does the harm, but the fears and worries associated with the condition.

habit of sleep be impaired or lost by the disregard of a regular time for its indulgence. Proper hours of sleep broken in upon may result in wakefulness that cannot easily be thrown off.

The impairment of sleep may relate either to quality or quantity, or to both. The amount of sleep required by persons generally varies to a considerable degree, as well as the quantity necessary for the distinct periods of life and by persons of different temperaments. The quality of the sleep, whether it be deep or light, should also be heeded. For instance, the young require more sleep than those advanced in years; the active-minded more than the indolent and sluggish. Good authorities say that children and youths should have nine or ten hours in bed, and even in the active years of middle life the hours of sleep should not be less than seven or eight. Strange as it may seem, the aged usually take only five or six hours of sleep at night, due probably to quieter habits and to a tendency of taking frequent naps during the day. On the other hand, sleep may be excessive. Certain types of idiots and imbeciles spend many hours in sleep; in advanced life senile subjects are given to much somnolence, likewise persons suffering from organic disease of the brain.

Insomnia is one of the most urgent symptoms that is met with among the insane. In some cases sleeplessness is very marked and the patient may not secure refreshing sleep for many consecutive nights. Some patients quickly go to

sleep on retiring and wake up in an hour or two and lie awake the rest of the night. Others are restless on going to bed and do not settle into sleep until late in the morning. It would appear that the insane can do with less sleep, and not show ill effects from it, than those in normal health. This should be remembered when resorting to hypnotics.

Treatment.—The causes of sleeplessness are numerous, and it is essential in beginning the treatment of a case that the cause, if possible, be ascertained. Other measures should be tried before having recourse to hypnotics, although in too many instances it is feared they are first to be employed. To this end the patient should be thoroughly examined. Inquiry should be made into his family history, his own past history, his habits as to food, alcohol, work, exercise, clothing, etc.

The inability to sleep depends frequently upon actual starvation of the nerve centres. Under these circumstances the taking of a little food just before retiring, as a glass of hot milk, a cup of cocoa or chocolate, may be all that is necessary to induce repose for the night. A warm bath will also be found of service in certain cases. Some patients are wakeful and disturbed at night from timidity when left alone in a room, who would rest well if assured of the companionship of others. Some cannot sleep at night on account of sleeping too much in the day; while on the other hand it sometimes occurs that a

patient is disturbed at night unless he has the opportunity to lie down for an hour or so during the day.

Hypnotics.—The drugs used for this purpose are very numerous, and much skill can be exercised in their choice. The state of the patient needs to be considered, whether young or old, robust or feeble, or whether he is suffering from any bodily disease; as to the drug, it must be determined whether the effect desired is to be immediate or whether its action is to be prolonged. Again, it is to be remembered that some drugs are stimulating and others have a depressing action. Hypnotics are liable to lose their effect if too continuously administered. It is well, therefore, that they should be frequently changed. Furthermore, if they are too long continued the patient is liable to form a habit for the drug. Never continue, on this account, any narcotic drug after it ceases to be necessary. If the patient has lost confidence in his ability to obtain sleep without his accustomed drug, as sometimes occurs, it may be well, if other expedients fail, to resort to a placebo, such as a few grains of sulphate of soda, or a little aromatic tincture. Under these circumstances it need not cause surprise if he does as well as with his usual potion.

Chloral Hydrate.—Chloral hydrate ranks among the best of hypnotics. It is a cardiac depressant and is contra-indicated in patients with weakened circulation. As it tends to in-

crease motor excitement, it is better suited for depressed patients than those with psychomotor activity. A combination of chloral with the bromides is often serviceable. It should be remembered that the chloral habit may be formed by long use of the drug. The dose is from fifteen to thirty grains, and should not be given until the patient has retired.

Chloralamide.—This drug is a mild hypnotic and not effectual in severe insomnia. Average dose, thirty grains in wine spirits or spirituous compounds.

Paraldehyde.—Paraldehyde is a valuable hypnotic. It acts promptly, producing sleep within a quarter of an hour, and its effects pass off rapidly, within two hours. It ought not to be given till the patient is in bed and ready for sleep. In cases that are hard to start but sleep well when started it makes a good selection. It has a pungent taste and a disagreeable odor which make it unpleasant to many patients. It is a heart and respiratory stimulant and is useful for feeble people, but if given continuously may lead to a troublesome bronchitis, as it favors secretions in the respiratory tubes. The effects of the drug diminish rapidly and, therefore, it cannot be given many nights in succession. The dose is two drachms, which may be doubled without harm. It may be given in glycerine and water, or aromatic elixir is a good vehicle.

Amylene Hydrate.—This drug acts even more quickly than paraldehyde and its effects are more

lasting. It is less unpleasant to the taste and less disagreeable in odor. The dose is from one to one and a half drachms in an ounce of water.

Sulphonal.—Sulphonal is a most reputable hypnotic and is much used, both in private and hospital practice. Its action is slow, hence it should be given two or three hours before bedtime. This drug is a motor sedative and has advantages in motor excitement. A word of caution is given as to its tendency to produce chronic poisoning on repeated administration for long periods. The symptoms are an obstinate constipation, diminished quantity of urine, nervous disturbances, and hæmatoporphyrinuria. Scanty, dark red urine should at once excite suspicion. To prevent sulphonal poisoning an aperient should be taken at regular intervals, say a draught of Apollinaris water following the administration of a full dose of the drug. This hypnotic is more suitable for old people than for young patients. It is easily given, as it is a tasteless and odorless powder. The dose is from fifteen to thirty grains, taken in milk.

Trional.—Trional is a mild hypnotic similar to sulphonal. Its action is more rapid than the latter and it should not be given more than an hour before bedtime. It also acts better in elderly people and is liable to be disappointing in the young. The poisonous effects of the drug are the same as in sulphonal, although not so severe and occurring less frequently. A combination of equal parts with sulphonal (seven and a

half grains each) answers well in many instances. The more rapidly induced effects of the former are supplemented by the less transient action of the latter drug.

Veronal.—The hypnotic action of this drug is rather uncertain, but it is useful for patients who get an insufficient amount of sleep. It is without value in patients whose sleeplessness is due to pain. The dose is from five to fifteen grains, and it should be administered in warm milk or tea. It is sometimes found that full doses make the patient sick the next day.

The Bromides.—In the early stages of sleeplessness and in mild cases, these drugs may be found to serve to good purpose. In doses of ten to fifteen grains each has a common effect, which may lead at bedtime to natural sleep. They are practically worthless in the severe forms of insomnia. In combination with chloral their action is decidedly better.

Opium, Morphine, etc.—The use of opium and its alkaloids as general hypnotics with the insane is not good practice, and it is seldom that any preparation of opium should be so employed. Considering the readiness with which the opium habit is formed, physicians are usually cautious in giving it for simple sleeplessness. In patients suffering from severe mental and physical exhaustion its restorative power is often very good. At one time the opium treatment for melancholia had many adherents, but of late years it is seldom used in this way, although at times its

action is good. Opium in the treatment of the insane is often avoided because of its marked tendency to lock the secretions and increase constipation, which is such a troublesome complication with these patients generally.

There are other classes of medicine used in the treatment of these cases, including such as are appropriate for the building up of the general health, for anæmia, constipation, indigestion, etc.

As these conditions do not differ from general medical principles laid down in the text-books, it is not necessary to describe them.

CHAPTER XIX

The Patient from the Nursing Viewpoint

The Nurse.—Mental discipline and technical training are not the only essentials for producing a skilled nurse, but in order to learn and practise the calling to the best advantage the aspirant should possess certain qualifications. The work in behalf of the insane is varied and exacting. There are fancies and delusions to be humored; individual peculiarities to be understood; extravagant language and conduct to be controlled; the untidy and helpless to be kept clean; the dangerous to be guarded; the noisy and destructive to be calmed; the sick and infirm to be soothed and nursed. Occupation and diversion are to be supplied to individual minds, and a hundred duties to be performed that are calculated to

tax the energies and to furnish material for the highest talents.

First, and very important, as it is in other pursuits, a nurse should be healthy and strong. The work is arduous and responsible, and it is needful that the nurse should possess at least a good supply of physical health.

Besides physical soundness, there are mental distinctions that betoken the good nurse. A

FIG. 73.—An insane woman burned at the stake, sentenced to death for witchcraft in Scotland, 1773.

chief merit is a good temper, which often is dependent upon the state of the health. No less desirable for the comfort and well-being of the nervous and insane is the ability on the part of the nurse to cheer and sympathize with them. Then there are, besides, patience, kindness, and that indispensable quality known as tact, which is the knack of doing the right thing at the right time, acting judiciously on the instant. Indeed,

the possession of these means all the advantages that strength has over weakness and intelligence over ignorance in every condition of life.

Next among the good qualities of nursing is cleanliness. It is, of course, the basis of success in surgical nursing, and it is scarcely less impor-

FIG. 74.—During the investigation of the care of the insane in England, by Parliament, in 1816, this man (John Norris) was discovered in one of the London asylums, heavily manacled, in a bare, cold cell, as shown in the illustration, where he had been confined for several years.

tant in medical work and among the insane. In fact, cleanliness by many is held to be the acme of nursing qualities. The old adage says: "Cleanliness is next to godliness," but if it is not, it is next to nothing. Be clean, keep patient clean, beds clean, rooms clean—everything clean.

There remains to be considered one more quality: conscientiousness, scrupulous care over details, and an earnest desire to omit nothing that will contribute to the welfare of the patient. Habits of faithfulness in small things lead to faithfulness in larger ones, while careless doing of minor acts prepares the way and trains the conscience for misdoings that bring ruin in nursing, and indeed into any work. The "Golden Rule" should be the watchword: "Whatsoever ye would that men should do unto you, even so do ye unto them."

Dr. Stedman,[1] writing on mental nursing, lays great stress upon the companionship relation of the nurse to her patient. She has often to fill the rôle of devoted friend and helper, whether or not her efforts are appreciated and responded to by her charge. Among her daily duties is the use of all the pretty accomplishments and amenities of home life—music, reading, games, etc. The readings are given from selected books, such as would be pleasing to the patient were she well. She also sees that the patient herself reads, even training her to read aloud regularly for a definite time each day. Many a patient has been brightened and improved by exercising in this way the disused functions of speech. The nurse will often have to help in a patient's correspondence, guiding and influencing her as a wise counsellor and friend.

[1] The Art of Companionship in Mental Nursing, by Henry R. Stedman, M.D., Boston, Mass.

The finished companion-nurse will have as a part of her armamentarium some proficiency at games of various kinds, indoor and outdoor. She will begin early to master solitaire and other parlor games and be on the alert for new ones. Out-of-door sports she will pick up with different patients, not a few of whom take a certain satisfaction in teaching the nurse the necessary points. She will know the delightful walks to take, and a love and knowledge of nature will interest and amuse her patient in the wide field of "nature study," so fascinating to all classes of people. She will be equally vigilant as to rest hours for her patient as a definite part of the scheduled routine of daily work, play, and rest.

The expert companion-nurse will understand that what really counts in the care and treatment of mental cases is the psychic aspect of the task. Personal attention and influence suitably directed, he claims, is the essential factor, exclusive of the treatment and management of acute and disturbed cases and the physically ill.

A nurse of large experience in mental nursing, after a term of service in a general hospital, was asked what the difference was between the two kinds of nursing. She answered: "In a general hospital the patient must please the nurse; with the mentally ill the nurse must please the patient."

As every mental case is a law unto itself, so should every one be particularized and cared for individually. The general rules and principles written for the nurse's guidance can only serve

as a fund of information to warn her of emergencies that may beset her path, and from which she may intelligently extract the method that may apply to the best interest of the special case. When a nurse enters upon her duties with a new patient, the first impression made upon him is of prime importance; it often determines the patient's future well-being, as upon it depends the gaining of his confidence, or, on the contrary, arousing in him a feeling of suspicion or a spirit of antagonism. The nurse should strive to allay suspicion, quiet the apprehensions of the patient; assure him by word and deed that he is among friends who only desire to do him good. The patient should be treated at all times with consideration and respect; never practise deceptions on him or lead him into distrust by false promises. Such explanation should be made to him to give him a proper understanding of his new surroundings and of the regulation of his daily life. On admission the patient should be searched for harmful objects as well as valuables, and these articles should be turned over to the proper authorities, with the information to the patient that they will be cared for and returned in due time. It is a good plan, which is usually followed, to give the patient a bath on admission and afterward put him to bed for the physician's inspection. When bathing note should be made of any bruises, sores, skin disease, scars, ruptures, tumor, or unusual appearance of the body,

which should be reported to the physician or head nurse, as the case may be. In many well-ordered hospitals, the nurses are instructed to see at this time that the patient's hair and nails are neatly trimmed. The hair of a female patient should not be cut without the express sanction of the physician; and in case of a male patient the beard should be retained as nearly as possible in accordance with the patient's usual custom of wearing it, and so far as practicable in compliance with his desire. The efficient nurse will see that the patient is kept neat and tidy at all times; the clothing and bedding aired and laundered. In respect to the clothing, care should be given not only to its neatness and adjustment, but also to its fitness to the weather. Trousers and skirts dragging the floor, shoes unlaced and run down at the heel, clothing needing buttons or torn are an injustice to the patient and a reflection upon the faithfulness of the nurse. Further care and oversight will necessarily depend upon the character of the case, whether homicidal, suicidal, epileptic, destructive, of unclean habits, excited, depressed, or suffering from bodily disease.

The details of catheterization, the giving of enemata, attention to bed-sores and care of the feeble, pertaining to ordinary sick-nursing, need not be described here.

Administration of Medicine.—The intelligent nurse should plainly see that only gentle force can be used in giving medicine to a reluctant

patient; and the unpleasant practice of holding a recalcitrant nose for the purpose is unjustifiable. Some writers recommend that the medicine be given, if the physician regards it essential, by enema rather than to use much force in giving it by mouth. A nurse should observe the effect of medicine upon the patient, especially any untoward effect, and so report it to the physician, making sure always that the proper medicine and dose are given. Lamentable results have occurred to careless nurses, not only endangering the life of the patient but causing the ruin of their own career. A common danger is mistaking mixtures intended for external application, which often contain poisonous ingredients, for internal remedies. Medicines of all descriptions should be securely locked in a closet or cabinet and dispensed to the patient in single doses. Pills and tablets containing powerful drugs are better given, if possible, in solution, as a designing patient may by deceit collect a sufficient number in course of time and by swallowing them collectively accomplish suicide. When giving such to a doubtful patient the nurse should make sure that it is swallowed by having the patient speak afterwards, or in some other good way satisfying herself that the medicine is not retained in the mouth. Finally, it may be stated as a good rule not to give medicine in food, if it can be avoided. If the patient's suspicion is aroused he may refuse to take his food, and then, for obvious reasons, the latter state is worse than the first.

FIG. 75.—Outdoor recreation and exercise for patients and nurses.

Exercise (Fig. 75).—The importance of rest in the treatment of mental disease has already been emphasized. As the patient gains in strength, gentle exercise for short periods daily should be permitted, but the strength should not be taxed to the point of fatigue. At first exercise should be limited to one or two hours a day. Even when the patient is well on into convalescence, he should not be allowed to overdo. On the other hand, if the physical strength is good and there are no symptoms of exhaustion, physical exercise may be of great benefit to the patient. It may take the form of pleasant walks, outdoor games, such as golf and tennis, or indulgence in light gymnastics. The effects of exercise are both stimulating to the mind and strengthening to the body. Exercise also promotes good digestion and has a calming and wholesome influence on the brain and nervous system.

Occupation and Diversion (Fig. 76).—For the insane, occupation and diversion are universally held, by those best able to judge, as of great value. In fact, when judiciously used they may rank among our most valued remedial measures. Activity, so essential to the health of the sane, is equally useful in restoring functional impairment of the insane. Employment is a law of our nature, which finds expression in no less degree in the insane than in the sane. As for the theory by which benefit to them is wrought, one has only to reflect upon the depressing effect of inaction, and turn then to the satisfaction and

strength that lie in the agreeable use of one's mental and physical powers. Experience in this, as in other things, has proved a wise teacher. At the present day the question of the utility of these agents is not in dispute, and it may be added that the kinds best adapted to aid in the

Courtesy of National Committee of Mental Hygiene.

FIG. 76.—Diversional occupation in a State hospital.

restoration and welfare of patients may be found in all well-ordered hospitals of the land. Beside the disciplinary and re-educational value of work, the insane by means of it are stimulated into a more normal and wholesome state of mind.

Employment and diversion are not only useful

in acute mental disease, but they are also of great value in arresting the tendency to dementia in chronic forms.

In State institutions, where the male patients are accustomed to farm life, they are frequently employed in laboring work in the grounds, gardens, dairy, and stables, while the women are engaged in sewing, knitting, laundry and household work. In some institutions a park or "Zoo" is maintained in the pleasure grounds of the patients, where deer, goats, sheep, lambs, poultry, English rabbits, pigeons, and other domestic animals are kept. Carriage riding has long been a favorite form of recreation. Since the introduction of the automobile, however, it has been replaced by this pleasanter form of locomotion. Cabinets of stuffed birds and animals, as well as other objects of natural history, are frequently found in the patients' quarters. Special pets, belonging to individual patients, take as wide a range as they do in normal life, comprising the several breeds of cats, dogs, birds, and fish. Books of history, travel, poetry, and fiction abound; also magazines, periodicals, and daily newspapers. Of late years, a gymnasium building is included in the equipment of many hospitals. Besides a well-appointed gymnasium, where physical culture classes are conducted by a trained teacher, the building usually contains an amusement room for such diversions as billiards, pool, and bowling, to which often is added a shuffleboard table. In another part of the build-

ing, or in a pavilion by itself, are cheerful rooms for art and craft work.

Evening entertainments agreeably interrupt the monotony of the winter season in most institutions and contribute to the happiness of the patients, as well as to their restoration. These consist of theatricals, concerts, lectures, stereopticon exhibitions, still and moving pictures, readings, magic, and vaudeville.

In some hospitals, especially for the private class, social parties are continued throughout the year, to which patients who are in a condition to be benefited by them are invited. Likewise, weekly parties with evening sociables form most pleasant and homelike features. In the summer time picnics are common, and in several hospitals the patients are taken to a health resort cottage or the seashore for a change.

The following lists of occupations are taken from the records of a State and private hospital respectively:

1. Patients occupied in administration department; in brass-band and orchestra; the bakery; billiard room; boiler house; craft shop; brush, broom, carpenter, mattress, mat, shoe, tailor, weaving, paint, plumbing and blacksmith shops; on farm; in garden; laundry; printing office; in the stables, dairy, wards, and dining-rooms.

2. Patients occupied in ward; outside; in gymnasium class; art class; industrial class; in needlework; King's Daughters; outdoor games,

indoor games; reading and writing; out walking, attended, unattended; riding; entertainments; social weekly tea-party; outside entertainments.

A well-selected library, containing books of history, travel, biography, essays, poetry and fiction, and an assorted list of current magazines, periodicals, pictorials and daily newspapers, is very desirable for patients. Many patients whose taste seems as strong as ever for this pursuit, experience much pleasure in reading. Even in those whose minds are markedly impaired there often remains a desire to indulge in this wholesome habit. To derive full benefit from books, it is essential that they should be easily accessible. A patient may frequently take up a book, which is at hand, when he would not consult a catalogue or take the trouble of going to a distant part of the house to possess himself of one. Nurses should be helpful to patients in this respect and should develop a talent for reading to them in an interested and agreeable manner.

To-day the study of nature is pursued with enthusiasm in many of our hospitals under the attractive title of "Nature Study." Since Goethe's time, when the study of botany consisted chiefly in identifying and naming plants and in learning their use in medicine, it has broadened into a many-sided subject, attracting thousands of students in high schools, colleges, and universities. This applies with much the same force to certain portions of geology and

zoölogy. The value of this study as a means of gaining information, discipline and culture, and for giving pleasure to the possessor every day in the year, has been recognized by educators. Mental hospitals have appreciated the applicability of this study to their patients, who can aptly be called children of an older growth. Hence, "nature study" classes may be found to-day in all hospitals, usually under the charge of an experienced teacher. The subject-matter takes a wide range, and the lessons are made as varied and attractive as the teacher's skill can make them. When the season is inclement the class may be entertained indoors, possibly by illustrated talks on vegetation, animals, or minerals; by mounting leaves, planting seeds, or analyzing flowers; or she may interest them in plants and flowers in the conservatories, or with the birds and animals in the museum. At other times they may go forth into field and wood to view nature in her accustomed haunts. The subject is inexhaustible, and when the work (or rather play) is entered into with zeal and relish there is no end to the good that may be reaped. We have evolved a plan of occupation and diversion in nature study that is popular with the patients and nurses. It affords open-air exercise of a mild character, suitable to all as to age, sex, and mental condition. In a way it resembles a modified type of golf, without the complexity of balls and sticks.

To begin with, the trees and shrubbery of the

lawns and woodlands need to be tagged with a number and indexed in a catalogue. At the same time the instructor prepares blue-print impressions of leaves (which of itself is a good occupation) that are bound into hand-books for practical use. With the aid of a book, which is made conveniently small to be carried, the patient and nurse go forth on a quest to identify these objects of nature by the size and form of the leaves. In a similar way the trees may be identified by the bark. Another scheme may consist in laying out several courses, which would have for its object a search for the different trees of the same group. For instance, let us suppose there are twenty sugar maples in the premises numbered in serial order. The patient and nurse go hunting until they find the twenty trees designated (which may be widely scattered) in much the same way one would go over a golf course. The search may possibly include the task of several days. Other studies and games, of course, may be worked out from this general plan.

A course of instruction is now given by schools of civics and philanthropy in several large cities to qualify nurses to amuse patients or give them simple occupation, and to train nurses in methods suitable for the re-education of patients.

In one of these schools, giving twelve or more lessons, the prospectus in part reads:

Games.—Pupils are required to learn cribbage, euchre, whist or bridge, and fan-tan; three forms

of solitaire, baker's dozen, Canfield or Klondike and rain and bow; also dominoes, sniff and checkers.

They are given a talk on the use of various forms of puzzles and are given a number of simple puzzles in order to start a collection.

String-Work.—After learning to serve, to braid four or more flat, and four round, and to tie square, crown and wall knots, the nurses are taught the application of these in making fobs, guards or other articles.

They also learn to make a string doll or a duster—these being modifications of a tassel—and to make a doll's hammock or a bag upon a pasteboard base—these being an introduction to weaving.

Paper Folding.—The required forms are an envelope, a cup, a fish's mouth, a frame and a box.

Paper Cutting.—A star and a string of dolls are the first step, being a combination with folding.

Besides the above, other forms are suggested and shown but are not required.

Binding.—Simple pamphlet stitching is taught and also a combination of a number of folded sheets to form a scrap-book.

Crepe-paper Work.—Usually some simple objects are made in order to teach the possibilities of crepe-paper and crepe-paper rope.

Reed Basketry.—Each nurse makes a basket and is taught various combinations of weaving the same.

Embroidery.—The chief thing required is a cross-stitch design in order to make sure the nurses understand the possibilities of cross-stitch work.

Leather Work.—A demonstration of the technic of carving and hammering leather is given.

Wood Work.—This consists of a demonstration of simple wood carving and of practical work in the shop in making simple objects, such as paper-knives, canes, trays, bird-houses, wind toys, stools, etc.

Metal Work.—This consists of practical work in Venetian iron work, hammering copper, making copper ornaments, initials, paper cutters, etc.

Occupation should be made an integral part of the daily life. A regular schedule [1] is advisable. The work should be suitably interrupted by relaxation and variety.

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[1] EXAMPLE, Case 4545. Miss ——

A.M.	
7	Observations (nurse-clinical).
7 – 7.30	Bath.
7.30– 8	Dressing.
8 – 8.30	Breakfast.
8.30–10	Writing letters, etc.
10 –10.45	Calisthenics.
11 –12	Handicraft.
P. M.	
12 – 1	Any diversion, generally spent conversing with patients.
1 – 1.30	Dinner.
2	Preparing for baths.
2.30– 3.30	Tonic baths.
3.30– 4.30	Resting.
4.30– 5	On lawn.
5 – 6	Resting, conversing with others, etc.
6 – 6.30	Supper.
6.30	Observations (nurse-clinical).
6.45– 7.45	On lawn.
7.45– 8	In apartments or ward.

The signs of fatigue should be guarded against. These may be wandering attention, feeling of fatigue, headache, flushing of face, confusion, carelessness or diminished accuracy of work; or the less readily recognized ones, greater speed, quick nervous movements, restlessness, impatience, hilarity, and talkativeness.

In employing patients with depression, vigilant care should be exercised respecting sharp-pointed or sharp-edged instruments, as steel knitting or crochet needles, penknives, and other cutting tools. Large wooden or celluloid needles and blunt-end scissors may be used with greater safety. Besides unremitting observation during work, the implements should be counted and put away under lock and key as soon as the patients have finished with them for the time being. The more depressed patients, who easily tire, should be tried only with coarse work, easily and quickly done. Work should be done leisurely, with relaxation, and sometimes delayed by a cup of tea or light lunch. Tell your patients: "Don't work in a hurry. Take all the time you want. Don't feel that you must do a certain task in a given time. You have all the time there is for doing it. Don't make a worrying task of it. Don't drive yourself" (Dr. Neff).

A new fad to employ patients with but small command of attention is called vicarious occupation. The patient is given, as it were, an occupation bath, by immersing him in an industrial field. In other words, he is taken into the craft-

shop, surrounded by busy workers to absorb as much of the spirit of labor as he may. For one disinclined to work, if she be a woman, a beginning can be made by the nurse dressing a doll, or doing some easy embroidery, or making an apron, which may take the patient's attention and interest her for a while. If the work is made personal, so much the better. Again, the nurse may have the patient help a little by holding the work, winding the yarn, taking out basting thread, or the like. Pictures in a periodical like *Life* can be looked at for a few minutes. Simple one-pack games of solitaire, or coarse sewing, which does not try the eyes nor require much attention, are also used. The easier forms of reed and raffia basket work, with plain weave and design and one or two colors in bands, may next be tried. Soon the patient can be led on to try water-color copying, or other work which may be suggested by the nurse or teacher.

For men, occupation is more difficult to devise. Pastimes rather than construction work have to be relied on. They may take up polishing a floor, sand-papering the backs of scrubbing brushes, shovelling snow, tossing a baseball, football, or medicine ball, or looking on while others play games. Then indoor games may be taken up. Checkers and backgammon are among the early games, with simple games of solitaire. Glancing at the daily papers can be encouraged rather early also. For younger men, batting and catching ball, casting quoits, later billiards, pool,

golf, tennis, and bowling. For elderly men, walks, rides, reading, and cards; and for all, newspapers, illustrated periodicals, and books.

In excitable patients where the pressure of activity is great, it will be found that fine or finical work cannot be undertaken. For them rough, coarse work in the open air is the best, as grading, road building, clearing ground of timber, and making concrete blocks. Women of this class can engage in the rough housework of scrubbing and cleaning and in laundry work.

As we have seen, employment is desirable also for the chronic insane. Occupation for these patients includes not only work of many kinds but recreations and play. For example, drills, marches, contra-dances, simple athletic games like bean bags and medicine ball may be sandwiched between more sedentary pursuits, as sewing, weaving, brush and basket making, cane-seating chairs, etc. In many hospitals special instructors are employed in addition to the nurses as kindergarten, sloyd, sewing, dancing and general handcraft teachers.

As a suggestion of what may be done for patients in diversion and occupation, a list is appended, both work and play, applicable to their needs. Some of the occupations are divided as to sex, and others given may be used by both sexes. Nearly all of the diversions in the list can be used by each sex with equal satisfaction, which makes a division of them unnecessary. To make a complete list, especially of the diver-

sions, would carry us beyond proper scope. We have given only the better ones and those that have proved serviceable. They are generally so well known that they require no explanation; those unfamiliar are described in books of games, etc., to be had at most book stores.

OCCUPATION FOR MEN

Shoe repairing
Carpentry and cabinet making
Broom making
Furniture repairing
Mattress making
Pillow making
Grading
Ditching
Cement block work, flower pots, etc.
Painting
Cane seating
Brush making
Sloyd
Wood carving
Upholstery
Road building
Land clearing
Garden, farm, poultry and dairy work

OCCUPATION FOR WOMEN

Cutting and sewing rags for carpets
Spinning
Basketry
Reed and raffia work
Sewing clothing, bedding, etc.
Making bandages
Bead work, chains, bags, etc.
Simple hand sewing
Knitting
Embroidery and fancy work
Lace making
Crocheting
China painting
Quilting
Hand table weaving
Mexican drawn work
King's Daughters
Tatting

OCCUPATION FOR BOTH SEXES

Weaving crash, linen, rag carpets, etc.
Braiding rugs
Net making
Passe-partouting
Leather work
Pyrography
Coir mat weaving
Brass hammering and punch work
Jig sawing
Drawing in its several branches
Machine knitting, socks, caps, mittens, etc.
Hooking rugs
Water color and oil painting
Clay modelling
Loom work
Photography
Rag mat making
Cutting out pictures for scrapbooks
Bookbinding

GAMES AND DIVERSIONS FOR BOTH SEXES

Chess	Checkers
Parchesi	Backgammon
Billiards	Pool
Shuffleboard	Bagatelle
Bowling	Basket ball
Cards, including solitaire	Dominoes
Tiddledy-winks	Ping-pong
Reading and writing	Handball
Medicine ball	Concerts
Theatricals	Lectures
Stereopticon exhibitions	Recitations
Moving pictures	Vaudeville
Musical instruments	Singing
Calisthenics with or without apparatus	Battledore
	Bean bags
Rhythmic drills	Marches
Sociables	Tea parties
Ring-toss	Dances
Shouting and acting proverbs	Going to Jerusalem
Stage coach	Shadow-buff
Forfeits	Blindman's-buff
Dumb-crambo	Slap-jack
Charades	Tableaux vivants
Sack race	Hare and hounds
Tug-of-war	Bean bag board
Spoon potato race	Hoch der Kaiser
Hockey	Tether ball
Golf	Baseball
Skating	Walks
Automobile and carriage riding	Croquet
Tennis	Swinging
Nature study	Pony cart
Boating	Football

CHAPTER XX

Food and Feeding

Food.—The diet, generally, should consist of a liberal supply of good, nutritious food. It should be well prepared and cooked, and served to the patient in a dainty and appetizing manner. Care should be taken that the dishes and other

appointments of the table are immaculate and pleasing to the eye. The table linen should be fresh, and in the case of feeding the patient by hand a clean napkin should be used to protect the clothing. Personal habits of cleanliness should be enforced by the nurse as to the patient's hands and mouth, both before and after eating. In helpless cases a wet cloth or absorbent cotton should be used upon the teeth and tongue to remove unhealthy accumulations, also in acute illness this should be done.

Milk is invaluable as a food for the insane, and patients should usually take at least a pint and a half a day in addition to their regular food. In case of delicate patients it is well to serve a glass of milk with egg, as an egg-nog, between meals. Some patients will object that they cannot take milk, as it does not agree with them, but with patience this prejudice can often be overcome. In some instances the objection is based on a real idiosyncrasy, which may be overcome by a trial of various forms of modified milk. In some cases the trouble may be met by the addition of some alkaline water, such as vichy, seltzer, apollinaris, or plain lime water. According to the taste of the patient, these waters may be given still or effervescent. At times a little table salt in the milk is a good expedient. When possible the addition of cream to the milk will help to fatten the patient. Fish and meat are excellent food in these cases, but the amount of meat should be restricted. Fresh vegetables are also of advan-

tage and should be a part of the regular diet. In exhausted cases, when the condition of the mouth is bad, lemonade is often of much value.

During the early weeks of illness it is important that the nurse faithfully watch the amount of food taken by the patient. If not sufficient, it should be supplemented by milk and eggs, as mentioned above, and the appetite tempted by gruels, beef tea, broths, custards, etc., as well as fresh fruit. No greater duty can fall to a nurse than to give strict attention to the administration of the patient's food. A conscientious nurse will always see that the patient gets sufficient food, which in the treatment of acute cases is so essential. The nurse will find, on the other hand, that when convalescence begins the patient may be inclined to eat enormous quantities of food. This is a good sign and should be encouraged so long as the food is well assimilated and there are no symptoms of indigestion. The chronic insane often have large appetites and are inclined to eat more than is good for them. Here, again, the vigilance of the nurse should be exercised by regulating the amount of food within proper limits. The diet in its application to special diseases in the insane does not differ from that applicable to sane persons.

The insane are frequently peculiar in their eating and in their likes and dislikes of food. Often delusions and false impressions influence them. To meet these whims and prejudices requires much patience, forbearance, and tact on

the part of the nurse, and the successful accomplishment of overcoming these difficulties is a test of her efficiency. For instance, some patients will take food in liquid form and not solid food. Sometimes a patient will take food from another patient, but not from the nurse. Another may eat when left alone at the table after the others have gone, through a feeling of unworthiness or fear of poison. In the latter case, some patients may accept eggs boiled in the shell, or potatoes baked in the skin, believing that food so prepared would be free from poison. One may eat crackers or bread or fruit if placed in his possession. Others will slyly take food from unexpected places or dishes; or partake of food from which the nurse is already helping herself. In suspicious cases an affectation of indifference sometimes answers well. The nurse should remember that food may be deceptively disposed of, thrown from windows, into the toilet, hidden or passed to one of the other patients, requiring watchfulness on her part. The mere fact that it has disappeared should not be taken as a proof that it has been eaten. Again, food is so broken up and crumbled by some patients as to make the amount consumed doubtful. When food is refused from inattention, it is often possible to give but little at a time. In such cases the feeding should be repeated frequently, selecting times when the patient's attention can be gained, or when it is least occupied with other matters. Inattentive patients seem to take food better at night when

all is still than in the day. Hence a supply for this purpose should be on hand at this time. In reporting the quantity of food taken by the patient, great care and accuracy should be observed. The nurse should not only ascertain the amount but reduce an accurate account of it to writing.

Artificial Feeding.—Injurious habits of not eating frequently go from bad to worse, and eventually lead to total refusal of food by the patient. It is a serious question when a patient is taking an insufficient amount of food to sustain life how long it is proper to wait before instituting forcible feeding. If the patient has gone a considerable time under a much lessened quantity, and he has lost weight decidedly, it is not wise to put off prompt action longer, but to resort to forcible feeding before his strength ebbs out entirely. If the patient has been taking some, but an insufficient amount, it is not well to wait more than a few days. If he is well nourished and is drinking water, it is safe to wait a week or even longer. If artificial feeding is once begun it may have to be continued for many weeks or even months. Sometimes, however, one feeding may suffice to cause the patient to return to a normal way of taking nourishment. With this in view, it is sometimes expedient to make an ostentatious display of instruments and a great clatter of sound as a gentle persuasion to the patient to avoid the necessity of the operation. Often a timid person will yield before the process is carried out, and subsequently give no occasion for it.

There are several methods of artificial feeding: (1) spoon feeding or the feeding cup; (2) stomach or nasal tube; and (3) rectal alimentation.

1. In feeding a patient by spoon or feeding cup, the nurse should be cautioned against using unguarded force lest the utensil used be forced too far into the mouth or against the face by the struggle of the patient. She should be careful to guard the mouth of the patient from injury from any jagged or sharp edge of the spoon, and also avoid the evil effects of indigestion by feeding too rapidly or in too large quantity at one time. A nurse should not be permitted to pour liquid nourishment carelessly down a patient's throat with a feeding cup, often a source of pulmonary abscess and gangrene.

2. Mechanical feeding. When perseverance with the cup and spoon are exhausted we are then obliged to resort to mechanical feeding. The usual plan is the introduction into the stomach by the mouth of a flexible rubber tube (No. 28–30 F.) or, in most cases better, by a smaller soft rubber tube (No. 20–22 F.) introduced through the nose. When the feeding is done by the mouth a hard wood wedge is used to prevent the patient from biting the tube. Invariably the insertion of the tube should be done by the physician with the aid of sufficient nurses to overcome by gentle force the antagonism of the patient. The tube can be lubricated by dipping it in the food. The patient may be seated in a chair, but preferably lying on his

bed. His clothing should be protected by a clean towel, fastened about the neck, his head supported by a nurse, and his hands and feet guarded against prehensile movements. Pass the tube to the back of the pharynx and when the patient swallows, lifting the larynx, the tube can be safely passed by it down the œsophagus; avoid passing the tube into the stomach, which is unnecessary, and lessens the liability of vomiting. During the operation, if the food is vomited back into the mouth by the side of the tube, the tube and wedge should at once be withdrawn and the patient permitted to clear the mouth, otherwise food may be drawn into the air-passages. In the nasal method, the nostrils should be cleansed with absorbent cotton, the tube oiled, and then gently inserted. Resistance may be encountered possibly by a deflected septum, or other cause, when it is well to withdraw the tube and pass it into the other side. By slight pressure it should readily glide along the posterior wall of the pharynx into the œsophagus and thence into the stomach. The tube is less likely to enter the larynx, which is the greatest danger to avoid, if the chin is slightly depressed when passing the tube. Some patients make the nasal operation difficult by violently expelling the tube by coughing it out through the mouth. A persistent "cougher" can make it impossible to effect the feeding by the nose. In this case, success can only be had by the less flexible tube by the mouth. In the great majority

of instances, little or no difficulty is experienced in properly introducing the tube. Its entrance into the stomach should always be verified before proceeding, which may be readily done by gently percussing the stomach while the physician holds the free or funnel-shaped end of the tube to his ear. As a further precaution a few teaspoonfuls of water may be poured cautiously into the tube to make sure that the passage is unobstructed. If free, the liquid food may then be slowly poured into the funnel after the tube has been drawn back into the lower part of the œsophagus, for reasons already given. When the prescribed amount has been given the tube is withdrawn. In doing this it is important to compress the tube between the thumb and fingers so that no liquid may escape from it as its opening passes the larynx. In some patients in whom the sensibilities are much benumbed it will be found that fluid or even the tube itself may enter the larynx without exciting a paroxysm of coughing or giving other evidence of strangulation. The danger, then, is the risk of introducing a considerable amount of liquid into the lungs, which may eventuate in abscess or gangrene of the lungs. With due precaution the risk of this accident is commonly slight and the operation generally is easily performed.

RELATIVE MERITS OF NASAL AND ŒSOPHAGEAL FEEDING

Nasal Feeding

Advantages	Disadvantages
Fewer nurses needed to hold patient.	Takes longer to feed patient.
No risk of injury to teeth by wedge.	Tube more readily blocked by mucus or solid masses of food.
Patient less able to effect regurgitation, which also is less liable to occur when tube is withdrawn.	If the patient is shouting, the tube readily goes into mouth or larynx.
	If long continued, may lead to troublesome form of ulceration of mucous membrane of nose.

Œsophageal Feeding

Advantages	Disadvantages
The food can be more readily given.	A larger number of assistants needed.
More solid food can be given without causing blockage.	A wedge for the jaws needed.
	Regurgitations more easily effected.
	Patients with small pharynx become cyanosed during feeding.
	When tube is withdrawn more danger of exciting vomiting.

The amount of food should be small at first, especially if the strength of the patient is much reduced, as there is danger of overfeeding. Later the quantity may be gradually increased, until the patient takes from a pint and a half to a quart twice daily. Usually the best food is milk with raw eggs; at times a broth or the preparations of beef may be substituted. From time to time lemon juice or orange may be given. Sleeping-draughts, aperients and other medication are administered with the food, as it does

not matter how the mixtures taste when passed through the tube, for the patient is unable to appreciate the flavor. The indigestion, which is a common accompaniment in many of these patients who refuse their food, may be ameliorated by stomach lavage, with a mild solution of bicarbonate of soda, given daily before the morning feeding.[1]

3. Rectal alimentation in the form of nutritive enemata is most unsatisfactory. These may consist of peptonized milk, peptonized minced beef, etc. The food should invariably be peptonized; the bowels first washed out and quieted by an opium suppository. In half an hour the nutritive enema may be given.

When weakness and emaciation are marked and to bridge over a crisis, a hypodermoclysis of common salt solution may be given with advantage. Usually, the fluid is rapidly absorbed and the benefit is seen in a stronger heart action. This procedure may be repeated, say twice in twenty-four hours. Enteroclysis is also practised, but not with as good results.

Suicide.—There is only one means of preventing suicide; it is the obvious one of constant vigilance. Both the physician and nurse learn by experience to recognize a patient that is inclined to suicide. When this tendency is present the nurse should be cautioned, and if the symptom is active the patient should not be

[1] Self-limitation to a too exclusive diet, as bread and water, produces an unhealthy condition called scurvy.

allowed out of sight. Some very active cases require the whole attention of one or more nurses. These patients should not have access to dangerous weapons or articles with which they could do themselves harm. The approach to any fire should be guarded. The nurses should do all in their power to soothe and quiet any who may be timid and apprehensive and assure them of their safety. Their rooms, clothing, bedding, etc., should be frequently inspected to make sure that no secret preparations are being made. Apart from these specific safeguards, much must depend upon the intelligence and faithfulness of the nurse. When the acute stage is past, it is often difficult to determine how much freedom may be accorded to the patient from time to time on his way to recovery. Each individual case should be judged by itself, as it is not possible to formulate a general rule applicable to all.

Homicide (Fig. 77).—A marked degree of homicide in an insane person is fortunately rather rare. It is oftener found in men than in women. Many patients may injure those about them by accident, sudden impulse, or through loss of temper, but he who cunningly matures a plan to kill and quietly waits his opportunity to inflict the blow displays the true type of homicide, and in consequence is a highly dangerous person to have in charge. Such patients need to be closely observed and surrounded by sufficient force in case of attack. It is well to keep them apart from other patients, especially those of like tendency.

Dangerous patients should be watched when taking outdoor exercise, lest they secrete a stone or some other handy weapon with which they could do much harm. A stone or other hard substance placed in a stocking or tied in a handkerchief forms a dangerous weapon, which may be used as a sling shot with deadly force. Persons of dangerous propensities should be, like suicidal patients, placed under close supervision and frequently searched. At night a nurse should not visit them singly. On recovery, great care should be exercised that full convalescence is present before giving the patient his liberty.

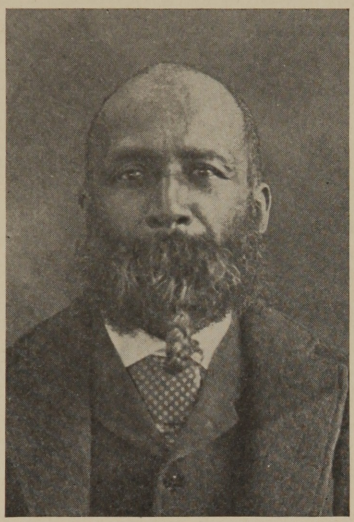

FIG. 77.—An insane mulatto of strong homicidal impulses.

To prevent accident the following precautions should be heeded:

Special care should always be given to the bread and carving knives. They should never be entrusted to patients. When not in actual use they should be locked in the knife drawer. At the close of each meal the knives should be counted and taken care of by the nurse.

Care should be taken that no weapon is brought in from walks or by occupation parties.

Carpenters or other mechanics while engaged in repairs or other work in patients' quarters should be closely attended. When practicable, and much time is likely to be occupied, the room in which the work is in progress should be kept locked or the patients removed.

Dangerous Weapons.—Especial care should be used at all times that patients do not become possessed of knives, razors, or dangerous articles of any kind. Frequent search for such articles should be made, and when the existence of any is suspected every possible means should be used to discover them.

Any article that would prove dangerous in the hand of a violent person, or in that of another patient, which would be used as a weapon, should be promptly removed.

Irritability.—Irritability is a common symptom of mental disease, as we have seen, but it is sometimes an expression of physical pain of which the patient does not complain. Its source should be looked for in sleeplessness, headache, aching teeth, abdominal pain, constipation, full bladder, hemorrhoids, etc., which if relieved, a period of calm is likely to follow.

Destructiveness and unclean habits are often associated in the same person, occurring in all forms of insanity, and requiring due care and attention. Correction is greatly aided by the ease with which insane persons fall into routine

habits. The nurse should inculcate slow and tidy eating, neatness in attire, personal attention to bodily wants, and thus fix good habits. Occupation is of great service in combating evil tendencies.

Seclusion.—By seclusion is meant the forcible isolation of a patient in his room against his will. It is usually regarded the mildest form of restraint. It may be resorted to when a patient cannot be persuaded to stay in his room to take prescribed rest, or at times it may be done to remove him from the irritating influence of others. The good of the patient should be the motive in carrying out this or any similar measure. Out of common humanity it should be practised as seldom as possible, and only for brief periods of time. The rules of the State Boards generally specify that it should be resorted to only under the supervision of the physician, and that a record be kept. The nurse should frequently look in upon the patient when in seclusion. The chief dangers are suicide, increased irritability, and tendency to destructive and untidy habits. Only under exceptional circumstances should a patient known to be acutely suicidal be placed in seclusion.

Mechanical Restraint (Fig. 78).—For many years and since the advent of the non-restraint system, the use of mechanical restraint in the care of the insane has met with general disfavor. As scientific methods have been more and more introduced, a large majority of the well-ordered

hospitals have abandoned it altogether, or employ it rarely in exceptional instances.

Mechanical restraint is admissible for surgical reasons to prevent movements of parts in case of fractured bones, or exceptionally when other means fail to prevent self-injury or injury to

Courtesy of National Committee of Mental Hygiene.

FIG. 78.—Mechanical restraint, illustrated by nurses.

others. The simplest form is the wearing of soft-padded mittens, without fingers, to impede prehensile movements. In some cases this may be found more humane than the resort to manual restraint (forcible restraint by nurses) or to chemical restraint, by the administration of potent stupefying drugs.

APPENDIX

(ADDRESSED TO NURSES)

Poisons

Poisons, as the term is popularly used, are substances which when taken into the body in small quantities endanger or terminate life. They may be taken accidentally or with suicidal intent, and it is usually under such circumstances that a nurse is called upon to act with promptness in order to counteract or check the action of the poison. If poison has been taken by accident in the presence of a nurse, she should relieve her patient so far as possible from anxiety or nervous shock by not making any unnecessary alarm in her statements and by taking prompt steps to remedy the evil. A physician should at once be sent for, and in the meantime, according to the nature of the poison, remedies may be administered, which act either by removing the substance, or by preventing or by counteracting the action of the poison. Such remedies are called antidotes..

An *antidote* may act in one of three ways:

1. Mechanically, in preventing absorption by emptying the stomach.

2. Chemically, in which one substance combining with another forms a harmless third body.

3. Physiologically, when the substance administered counteracts the poison in the system.

When one has to act promptly upon general principles without knowing what the poison is, it is perhaps the best thing at first to give an emetic, although later it will be explained to you that under certain circumstances it is not safe to give emetics, when certain symptoms show themselves. An emetic which can nearly always be obtained in a moment is mustard given in warm water. For an adult a tablespoonful should be given and for a child half the quantity of mustard to a cup of water, to be taken by mouth and the dose repeated every ten or fifteen minutes, until free vomiting is produced. Salt and warm water may be used in the same way, or vomiting may be produced by tickling the fauces with the finger or a feather.

The other common emetics, which can be used safely, are sulphate of zinc, 10 to 20 grains in a cup of water repeated every fifteen minutes; powdered ipecac, 15 to 30 grains; or fluid extract of ipecac, 15 to 30 minims.

Poisons may be divided according to their action into *corrosive*, *irritant*, and *narcotic*.

A corrosive poison is one that is likely to eat or burn through organic tissues instantly, while an irritant poison is one which acts more slowly upon the tissues, producing inflammation which may result in suppuration and perforation.

If it be a violent poison, corrosive or irritant, the antidote should be one that will act chemically upon the poison, either rendering it harmless or at least reducing the violence of its action.

As a rule, an emetic is not to be used in corrosive poisons, the action of sulphuric acid, for instance, being usually so rapid that the tissues would be injured long before an emetic could be given and the latter would only add to the irritation. In such cases the stomach pump, too, should not be employed, as its use may assist in the denuding of the mucous membrane and in producing perforation.

In the after-care of patients suffering from poisons of an irritant nature, great care should be taken with regard to diet; only soft, non-irritating food should be given, such as finely strained gruels, milk porridge, white of eggs.

In narcotic poisoning the action is upon the system at large and the antidote may be a combination of all the three forms—mechanical, chemical, and physiological.

In case of poisoning you must remember that the object is to preserve life in whatever way you best can. In this, of course, you must be guided by circumstances, but several broad rules may be laid down. Never wait for a remedy, however perfect, if an imperfect one is at hand. That is best which is readiest, the grand rule being, *to lose no time.* Most of the modes of treatment come under one or the other of the four following heads:

First, get rid of the poison;
Second, stop its action;
Third, remedy the mischief it has done; and
Fourth, fight against the tendency to death.

We will consider some of the more important poisons, together with their symptoms and treatment—poisons which it is the most likely that you will meet. Our space is too short to consider all poisons; we will, therefore, confine ourselves to those you are likely to be called upon to combat. First:

1. CORROSIVE POISONS

(A) **Corrosive Mineral Acids** (Nitric, Hydrochloric and Sulphuric Acids).—They are known as the mineral acids, and the symptoms they produce are much the same in all cases. There is violent burning pain in the mouth, gullet, and stomach, which commences immediately. The burning is followed by retching and vomiting of a dark-colored liquid with shreds of mucus. The inside of the mouth is shrivelled and more or less corroded, unless the acid has been given in a spoon, or drunk out of a bottle, and thus passed over the tongue to the back of the fauces. The outside of the lips and mouth will probably present stains that are characteristic of acids. There are great thirst, difficulty in swallowing, and impeded respiration, which last may arise from pain in the stomach. Next succeeds great exhaustion: the pulse becomes quick and feeble and the skin cold and clammy. The countenance becomes anxious and expressive of great suffering, and speedy death may occur. The intellectual powers remain clear to the last.

These acids may prove fatal without entering

the stomach by causing suffocation; the glottis becoming closed by swelling of the fauces or by swelling of the mucous membrane of the larynx.

When death does not take place from the immediate effects of the strong acid there is always fear of death resulting at the end of one or two years from stricture of the œsophagus, and even at an earlier period, unless proper treatment is adopted.

Treatment.—The first remedy at hand is the best. Baking soda or calcined magnesia or white magnesia should be given immediately, mixed with milk, or water, or a mucilaginous fluid. The dose should be continued at short intervals, until you are satisfied that the acid is neutralized. In the absence of these remedies, substitutes may be found in chalk, whiting, soap and water. Oleaginous and mucilaginous fluids, as olive oil, linseed tea, barley water, milk and gruel, may be freely given, either alone or as the vehicle of the antidote. The success of the treatment will depend upon the promptness with which it is adopted.

Should the larynx be affected and the breathing greatly impeded tracheotomy may be necessary.

The stomach pump should not be employed, as the softened state of the gullet and stomach renders them exceedingly liable to be perforated.

After a sufficiency of the antidote has been given, the use of mucilaginous fluids must be continued for some time and the subsequent treatment will be that for gastro-enteritis.

The external parts which have been injured by the acids should be well bathed with soap and water and treated like burns.

(B) **Corrosive Vegetable Acids** (Oxalic Acid).—This may be taken as an example of this group. From its cheapness and well-known properties it is frequently made use of in case of suicide; and owing to its resemblance to Epsom salts, it is liable to be taken by mistake for this medicine.

Symptoms.—When the dose is large, an ounce or more, and the solution concentrated, it proves rapidly fatal. It produces a hot, burning sensation in the act of swallowing, severe burning pains in the stomach, and in most instances immediate vomiting. The vomited matter is distinctly acid and dark brown or black in color. There is also a feeling of constriction about the throat or suffocation; lividity of the countenance, excruciating pain and prostration of strength, feeble pulse, cold, clammy perspiration, followed by convulsions, which speedily terminate in death.

Treatment.—Never use the stomach pump. Chalk, whiting, or magnesia may be given in water, or in some demulcent fluid. The antidote should be administered at once; if necessary, vomiting should be produced by tickling the fauces, or by administering an emetic; but the use of much fluid containing an antidote is to be avoided, as it tends to favor the absorption of the poison. The antidote, to be effective, must be given as soon as possible. The whitewash of the apartment, or any form of plaster may be

used in the absence of the remedies mentioned. Alkalies, such as soda or potash, are not only useless but they form insoluble salts with oxalic acid, which are as injurious as the poison itself.

(C) **Corrosive Alkalies** (Ammonia, Caustic Potash, Caustic Soda, Saltpetre and Lime).—*Symptoms.*—The chief symptoms occasioned by the foregoing poisons are an acrid burning, coming on during swallowing, with a sensation of burning, extending along the mouth and throat to the stomach. Frequently there is cough, hoarseness and difficulty in breathing, as well as vomiting of mucous fluid. The tongue, mouth, and fauces become swollen, soft and flabby, and swallowing is difficult. The surface of the body becomes cold and moist, the pulse slow and feeble, and there is great pain in the abdomen.

Treatment.—Do not use the stomach pump. The object should be to neutralize the poison, which may be effected by a mildly acid vinegar, or lemon juice, or a mild solution of carbolic acid, or sour cider, and which are among the best remedies to use. The use of oil, such as sweet-oil or castor-oil, has sometimes been recommended, on the principle that it converts the alkali into soap. But the efficacy of giving oil is doubtful.

(D) **Corrosive Organic Derivatives** (Creosote and Carbolic Acid).—*Symptoms.*—When carbolic acid is taken in poisonous doses it gives rise at once to pain in the stomach and whiteness

of the lips and mouth. Vomiting is not common and pain is not always noted. In a few minutes coma comes on, also stertorous breathing, and the pupils are contracted to a very marked degree. Death usually follows, within a period of a few minutes to some eight or ten hours.

Treatment.—Death by poisoning from carbolic acid is usually so sudden that little time is left for treatment. The object of treatment should be the immediate removal of the poison. Oily substances, which will absorb the acid and so dilute it, may be given with emetics to throw it off. If allowed to be dissolved the evil is increased. There is not the same objection to the stomach pump here as in some other corrosive poisons, as the softening is superficial, but it must be used with caution. Lime water and milk or syrup of lime should be given as antidotes.

2. IRRITANT POISONS

(A) **Antimony** (Tartar-Emetic, Wine of Antimony, Compound Syrup of Squill or Cox's Hive Syrup).—*Symptoms.*—In acute poisoning by the preparations of antimony there is a metallic taste in the mouth, coming on immediately after swallowing the poison. There are, also, nausea and violent vomiting with retching, burning heat, with pain in stomach, and purging. Difficulty in swallowing, lips colorless, cold perspiration, and great debility soon set in. Should the case terminate fatally death may be preceded by giddiness, insensi-

bility, difficult breathing, utter prostration with violent convulsions.

The effects of chronic poisoning by antimony are constant nausea, weak pulse, loss of muscular power, cold, clammy sweats, and fatal exhaustion.

Tartar-emetic ointment applied to the skin produces a pustular eruption like that of small-pox, while if much is absorbed there will be nausea and sickness.

Treatment.—Vomiting should be encouraged by warm, greasy water, milk, etc. Liquids containing tannin, as tea without milk and sugar, decoction of oak-bark may be freely given. Cinchona bark in tincture or powder may be prescribed, afterwards demulcent drinks and opiates.

(B) **Arsenic** (Fowler's Solution, Paris-green, Rough-on-Rats, and Arsenious Acid).—Arsenic is by far the most important of metallic poisons, whether we consider the deadliness of its effects or the frequency of its use. Arsenic may be taken in small non-poisonous doses, as is done by arsenic eaters, when it gives strength; and it is taken also to improve the complexion.

Symptoms.—The symptoms of poison by arsenic set in within half an hour or an hour of swallowing it. There are faintness, nausea, incessant vomiting, and a burning pain in the stomach, increased on pressure and gradually extending over the whole abdomen. Next follow frontal headache, diarrhœa, sense of constriction and heat in the throat, great thirst and retching and painful respiration. The heart's action be-

comes depressed; the pulse is quick and feeble, with great restlessness and anxiety, and cold, clammy skin. Death usually occurs within twenty-four hours. These symptoms are liable to great variation; pain and vomiting may be absent; there may be coma; there is often spasmodic twitching or cramps, especially in the legs; and sometimes there is tetanus. In some instances death may take place in collapse, at other times in convulsions.

Treatment.—The first object in dealing with a case of arsenic poisoning should be to get rid of the poison from the stomach. Vomiting must be promoted and the stomach pump may be used. Emetics of mustard or sulphate of zinc, or ipecac should be administered, if vomiting is not already going on. Albuminous or mucilaginous drinks should be freely used. Raw eggs beaten up in milk are particularly useful, as is likewise a mixture of white of eggs, milk and lime water, or equal parts of oil and lime water. A large dose of castor oil may be given (an ounce to two ounces) to carry off the poison. Animal charcoal, magnesia, and other similar insoluble or only partially soluble substances when taken in large quantities serve by enveloping the arsenic and preventing its contact with the mucous membrane of the stomach. The most efficient antidote known is the *hydrated sesquioxide of iron, or ferric hydroxide.* It may be freshly precipitated by adding a sufficient quantity of aqua ammonia to the tincture of iron. Strain and wash the red

precipitate thus obtained and stir it in milk or water and give freely and frequently.

(C) **Mercury** (Corrosive Sublimate, Calomel and Blue Mass).—*Symptoms*—In poisonous doses it causes nausea, vomiting, burning pains in the stomach, purging of mucus and blood, excessive thirst, anxious face, a frequent pulse, difficult respiration, coldness and cramps in the extremities, collapse, convulsions, and death.

Treatment.—White of eggs beaten up with water or flour and milk should be administered at once, after which the stomach should be thoroughly washed out with the stomach pump. Demulcent drinks, external heat, and heart stimulants are often indicated.

(D) **Iodine** (Tincture of Iodine).—*Symptoms.*—The symptoms of acute poisoning by iodine consist of tightness about the throat, pain in the stomach, vomiting and purging. The vomited matter has the odor of iodine.

Treatment.—The treatment consists in giving starch or flour stirred in water, followed by emetics. External heat and stimulants are indicated.

When starchy food has been taken the vomited matter has a blue color.

(E) **Lead** (Acetate or Sugar of Lead).—*Symptoms.*—The symptoms of acute lead-poisoning are burning sensations in the throat, stomach, and abdomen; a sweet, metallic taste in the mouth; vomiting, purging, or obstinate constipation and excessive thirst; paralysis, coma and collapse.

The vomit is white, due to the presence of chloride of lead formed by the action of the gastric juice, and the stools are black, due to the presence of the sulphide of lead, by the action of the contents of the bowels.

Treatment.—It consists in the use of emetics, and the administration of the antidotes, Glauber or Epsom salts.

The temperature should be maintained by external heat.

(F) **Phosphorus** (Phosphorus Pills, Hypophosphites and Phosphorus Paste used as Rat Poison). —*Symptoms.*—The symptoms of poisoning by phosphorus are very varied and insidious and may be described under two heads: (1) those that follow immediately on taking it, and (2) those that come on after several hours. At first there are the usual signs of an irritant poison. There are present a garlicky odor of the breath, the taste of phosphorus, burning pain in the throat and stomach and abdomen, violent vomiting and purging. The vomit if seen in the dark is luminous. Second, at the end of twenty-four or thirty-six hours, these symptoms abate and everything seems to be going on well, when suddenly a new train of symptoms develops. These are such as would occur in the worse form of blood-poisoning. They are harsh, dry, yellow skin with discharge of bloody stools, and the formation of extravasations below the skin. Finally acute delirium with convulsions set in, and the patient dies in coma.

Treatment.—Emetics and the stomach pump should be used. There is no regular antidote for phosphorus. Magnesia should be given freely in fluids, but oil must not be given, as it promotes the absorption of the poison.

3. NARCOTIC POISONS

(A) **Opium** (Laudanum, Paregoric, Morphine and McMunn's Elixir).—*Symptoms.*—The symptoms begin with giddiness, drowsiness, and stupor, followed by insensibility. The patient sinks into a profound sleep from which he cannot be aroused. As time goes on the breathing becomes slow and stertorous, the pulse, which at first is slow, becomes rapid and weak, and the face livid. The eyes are closed, and the pupils are much contracted,—the so-called pin-point pupils, which do not respond to light.

Treatment.—Emetics should first be used, such as sulphate of zinc, or mustard, also the stomach pump; and cold effusions, strong coffee, and various means to keep the patient awake. When the symptoms become grave use artificial respiration and galvanism.

(B) **Aconite** (Tincture, Fluid Extract and Liniment).—*Symptoms.*—The symptoms of poisoning are numbness and tingling of the lips, tongue, fingers, or the whole body; a slow, weak pulse; slow, shallow respiration; subnormal temperature, pallor of skin, cold sweat, and death in collapse. Convulsions sometimes occur before death.

A fatal mistake sometimes has been made by

eating the root of aconite for that of horse-radish.

Treatment.—If the symptoms are not very severe, emetics should be given, or the stomach washed out with a stomach pump, the vomited matter being received in a towel, the patient having been placed in bed with the head lowered and the foot of the bed elevated. If the symptoms are severe, emetics should not be given without the sanction of the physician, as the vomiting may arrest the action of the heart. Heat should be applied over the heart, and to all parts of the body. Stimulants should be given, and artificial respiration resorted to.

(C) **Belladonna** (Preparations of Belladonna and its Alkaloid, Atropin).—*Symptoms.*—They are dryness of mouth and throat, with thirst that nothing can allay; nausea and vomiting; marked dilation of pupils; indistinct and double vision; giddiness and palpitation of the heart; and delirium followed by stupor. There may be also loss of muscular power, failing pulse and respiration, subnormal temperature, coma, convulsions, and death from asphyxia.

Treatment.—Administer the chemical antidote, tannic acid; also use external heat to all parts of the body, and use stimulants, when the symptoms of collapse appear.

(D) **Chloral Hydrate.**—*Symptoms.*—At first excitement with delirium occurs, followed by profound coma, slow, thready pulse, complete muscular relaxation, labored respirations, and cold, clammy skin. The pupils are dilated.

Treatment.—This should be strenuously directed to keeping up artificial respiration, for hours if necessary. The stomach should be washed out with tea or coffee with the stomach pump, emetics of mustard used and means to keep the patient awake. When the strength fails, use stimulation and external heat, such as mustard plasters, mustard foot-bath, etc.

(E) **Chloroform.**—*Symptoms.*—Taken in large doses, it is a local irritant to the stomach and a powerful narcotic, causing stupor, convulsions, flushed face, frothing at the mouth, dilated pupils, cold, clammy skin, feeble pulse, and stertorous breathing. When taken in excess by inhalation, death may come suddenly and without warning from paralysis of the heart, or may be preceded by dilated pupils, pallor of the face, and feeble pulse.

Treatment.—There is no chemical antidote. If swallowed, emetics should be given, or the stomach pump should be used. When untoward symptoms result from inhalation, the anæsthetic must be withdrawn, the patient placed head downward, and exposed to a current of air, the tongue drawn forward, and artificial respiration practised. Heat should be applied to the body, a mustard plaster over the heart, and heart stimulants like strychnia and digitalis administered hypodermically. Galvanism also should be used.

(F) **Strychnia and Nux Vomica.**—*Symptoms.*—At first a very bitter taste is experienced during

swallowing, followed in a few moments by a sense of suffocation and difficulty of breathing. Soon follow stiffness about the neck and signs of impending death, twitching of the muscles, jerking movements, of the lower limbs especially, and a quivering of the whole frame. The limbs become rigid, the head is bent back, while the body is stiffened and arched backward. The difficulty of breathing causes the face to be dusky; the eyeballs become prominent, and the lips livid. There is much thirst, but there is inability to drink from spasms of the jaws. The sufferer is quite conscious, is much alarmed, and is impressed with the idea that death is surely stealing upon him. As the attacks of spasm begin, the patient cries out and warns those about him of the approach of the seizure. He begs for help and asks to be held or rubbed, or turned over, and when the seizure passes off at the end of forty or sixty seconds, he is exhausted and bathed in perspiration. As death approaches the spasms rapidly succeed each other and the patient sinks suffocated and exhausted.

Treatment.—The convulsions should be controlled by inhalations of chloroform. The chemical antidote is tannic acid. The physiological antidotes are potassium bromide and chloral, and when the patient is unable to swallow these may be given by the rectum. While the patient is under the influence of the anæsthetic, the stomach pump should be employed. Perfect quiet should be maintained and the patient kept warm.

INDEX

Abstinence symptoms, morphine, 104
cocaine, 106
Abulia, 86, 90
Action, automatic, 43
instinctive, 44
involuntary, 42, 44
reflex, 43
voluntary, 42, 45
Activity, pressure of, 83, 88, 98, 130
Acts, compulsive, 87
impulsive, 88
Acute confusional insanity, 98
Administration of food, 123, 176, 206
of medicine, 190
Adolescence, 57
Afferent nerves, 9
Age in etiology of insanity, 56
Agoraphobia, 144
Alcohol, 54, 56, 100, 101, 109
Alcoholic hallucinosis, 103
pseudoparesis, 103
Alcoholism, 55, 56, 101, 157
Amnesia, 71
Amusements, 193
Amylene hydrate, 181
Anxiety, 61
Anxious excitement, 84
tension, 84
Apperception, 21, 25
active, 30
Apperception, passive, 25
Appetite, change of, 85
Arithmomania, 142
Assaults, homicidal, 148
Association of ideas, 25, 26, 28, 30, 31, 63
tracts, 11
Attention, 21, 41, 114
involuntary, 42
voluntary, 45
Auditory hallucinations, 65
Aura, epileptic, 147
Autistic thinking, 49
Auto-intoxication psychoses, 106
Automatism, 91, 148
Axis cylinder, 7
Axon, 7

Baths, 168
douche, 170
prolonged, 168
Bed treatment, 175
Binet-Simon scale, 156
Blind Tom, 71, 158
Blood tumor of ear, 94
Bodily movements, 42, 45
Bones, fragility of, 92, 123
Brain, description, 3
organ of mind, 17
weight, 6
Bromides, 183
Bulimia, 85, 119

Care of the patient, 189
medical viewpoint, 159
nursing viewpoint, 184
"Castle-building," 29
Catalepsy, 152
Catatonia, 90, 110
Causes of mental disorders, 53
Central nervous system, 1
Cerebellum, 5
Cerebrospinal system, 1, 2
Cerebrum, 5, 6, 17
Changed personality, 79, 81
Childhood, 56
Chloralamide, 181
Chloral hydrate, 180
Circular insanity, 133
Civil condition, 60
Civilization, 60
Classification of the psychoses, 95
Claustrophobia, 144
Cleanliness, 186, 190
Climacteric, 58
insanity, 125
Clothing, 190
Cocainism, 105
Cognition, 28
Collapse delirium, 98
Collaterals, 7, 9
Complexes, 46
suppressed, 48
Compulsion, 74, 87
Concepts, 31
imperative, 140
Confusion, 68
Confusional insanity, 96
Congenital predisposition, 54, 149
Consciousness, 19, 26, 41, 82
clouding of, 68, 69
secondary, 79, 92
threshold of, 69
Constitutional psychopathic states, 139
Convalescence, 167
good signs, 168, 176
Convulsions, epileptic, 145
Coprolalia, 142
Cortex, 6, 10, 17
Cranks, 137
Cretinism, 108

Dangerous patients, 88, 148
weapons, 218
Degeneration, stigmata of, 140
Degenerative psychoses, 96, 130
Délire du toucher, 144
Delirium, abstinence, 104
collapse, 98
conscious (epileptic), 148
definition of, 96
febrile, 97
infection, 96
senile, 127
tremens, 102
Delusions, 75, 77
changeable, 77, 112
character, 77
fantastic, 111, 129
fixed, 78
of grandeur, 77, 116
hypochondriacal, 125, 126
nihilistic, 126
of persecution, 136
systematized, 78
unsystematized, 77
variety, 77

Dementia, alcoholic, 102
employment in, 195, 219
organic, 123
paralytica, 113
demented form, 122
depressed form, 122
expansive form, 122
galloping form, 122
juvenile, 122
tabetic, 122
in women, 113
præcox, 109
catatonia, 90, 110
hebephrenia, 110
paranoid forms, 111
senile, 127
Dendrites, 7
Destructiveness, 98, 218
Diet for the insane, 176
Dipsomania, 88, 103, 142
Disappointment, 61
Disorientation, 71, 99
Disposition, the, 34
fading, 70
Dissociated states, 48, 49
Distractibility, 130
Diversions, 193
Double personality, 79
Doubting mania, 143
Dreams, 48

Echolalia, 91
Echopraxia, 91
Education and training, 165
Efferent nerves, 9
Ego, the, 39
its development, 40
Electric light cabinet, 170
Emotional tone, 34, 47, 82
Emotions, 34
disorders of, 35, 82
Employment, 193
End-brush or tuft, 7
Enemata, 190
Enteroclysis, 215
Epilepsy, 145
diurnal, 147
nocturnal, 147
psychic, 148
Epileptic, automatism, 148
equivalent, 148
psychosis, 144, 158
Etiology, 53
Euphoria, 61, 82
Excesses, 60, 114
Excitement, motor, 83, 88, 98, 130
Exercise, 115, 193
Exhaustion psychoses, 98

Fabrications, 103
Fancy (phantasy), 29
Fatigue, 86, 100, 116
disturbance of the feeling of, 86, 82
Fatuity, 120
Fears, morbid, 84, 87, 144
Febrile psychoses, 97
Feeblemindedness, 155
Feeding, mechanical, 210
rectal, 215
Feeling of well-being, 61, 32
Feelings, 33, 35, 86
Fever, delirium, 97
Field of consciousness, 19, 46
motor projection, 40
sensory projection, 35
subconsciousness, 33

Flexibilitas cerea, 91
Flight of ideas, delirious form, 75
rambling form, 76
Food administration, 123, 176, 206
refusal of, 210
Forms of insanity, 45
Furor, epileptic, 148

Gait, the, 121
General paresis, 113
first stage, 116
juvenile, 122
prodromal stage, 114
remissions, 122
second stage, 118
third stage, 120
Genetous idiocy, 157
Goal, idea, 30, 74
Golden rule, 187
Golgi cells, 8
Grand mal, 147
Grave delirium, 98
Gray matter, 3, 6

Habit, formation of, 44
neural, 26
Hæmatoma auris, 94
Hæmatoporphyrinuria, 182
Hallucinations, 64, 138
auditory, 65
in depression, 126
fantastic, 111
in paranoia, 138
of smell, 67
of taste, 67
visual, 66
Hallucinosis, alcoholic, 103
Hallucinosis, cocaine, 106
Hallucinatory confusion, 100
Handwriting of the insane, 94
Heredity, 54, 149, 150, 157
Homicide, 137, 142, 216
precautions, 217
"Horrors," the, 103
Hunger, disturbance of, 85
the feeling of, 86
Hydrocephalic idiocy, 158
Hydrotherapy, 168
Hypnotics, 180
Hypodermoclysis, 100, 215
Hysterical psychosis, 150

Ideas, fixed, 78, 84, 140
flight of, 75, 76
general or abstract, 31, 32, 72
goal, 30, 74
how they recur, 25, 26, 28, 30
imperative, 140
of grandeur, 116
of self-importance, 77, 116
of unworthiness, 126
Idiocy, epileptic, 158
and imbecility, 155
hydrocephalic, 158
microcephalic, 157
moral, 155
paralytic, 158
sensorial, 158
thyroigenous, 108
Idio-imbecility, 156
Idiot-savants, 71, 158
Illusions, 23, 24, 63, 67
Imagination, active, creative, 30, 32

Imagination, passive, 29
Impulses, morbid, 88, 140, 142
Inattention, field of, 33
Infantilism, 140
Infection delirium, 96
psychoses, 96
Inhibition, 45
Insanity, alternating, 132
circular, 133
classification, 95
definition, 52
epileptic, 144
hysterical, 150
manic-depressive, 130
myxœdematous, 106
post-febrile, 97
Insomnia, 91, 115, 130, 177
Introspection, 21
Involutional melancholia, 125
psychoses, 125
Irritability, 218

Joy, excessive (euphoria), 61, 82
Judgment, definition, 33
disturbances of, 75
Juvenile general paresis, 122

Kinæsthetic sensations, 37
Kleptomania, 88, 142
Korsakoff's disease, 103

Leaves, example of general idea, 31
Letter-writing of the insane, 94
Life epochs, 56
Litigious paranoia, 138
Lucid interval, 133

Manic-depressive psychoses, 130
Mannerisms, 89
Marriage, 164
Massage, 154, 175
Maturity, 58
Mechanical feeding, 210
restraint, 219
Mechanism, sensory-motor, 42
Medicine, administration of, 190
Medulla oblongata, 3
Melancholia, agitated, 126
involutional, 125
Memory, 23, 29, 46, 70
disturbances, 70, 124
Mental disorders, 96
cause of, 53
classification of, 95
elaboration, disturbances, 70, 124
instability, 96, 139
processes, method of study of, 17
biological, 18
experimental, 21
extirpative, 18
introspective, 21
pathological, 20
work, capacity for, 82, 100, 115
Menopause, 58
Microcephalic idiocy, 157
Milk, 207
Mind, definition, 20
Mood, definition, 34
Moral insanity, 155
sense, 115, 156
Moron, 156
Morphine, 183

Morphinism, 104
Motor impulses, 9, 42
projection field, 40
tract, 12
Movements, stereotyped, 89
Mutism, 90
Myxœdematous insanity, 106

Nasal feeding, 211
Negativism, 89
Nerve-cells, 7, 9
impulses, 5, 8, 9, 10, 13
Nervous system, 1
Neural habit, 26
Neurasthenic states, 100
Neurons, 6
Neuroses, general, 96, 144, 150
Nihilistic delusions, 126
Nurses, special duties, 184

Obsessions, 140
impulsive, 141
inhibiting, 143
intellectual, 141
Occupation, 59, 193
Œsophageal feeding, 214
Opium, 86, 183
habit, 104
Organic cerebral psychoses, 123
Organs, special sense, 36
Overwork, 114, 165

Pack, wet, 171
Pain, 85, 104
Paraldehyde, 181
Paralytic dementia, 113
Paranoia, 134
erotic, 137
expansive, 136
Paranoia, fantastic, 112
litigious, 138
persecutory, 136
religious, 136
varieties, 138
Paranoid states, 111
Paresis, general, 113
demented, 122
depressed, 122
excited, 118
galloping, 122
juvenile, 122
tabetic, 122
Passion, 34
Patient from nursing viewpoint, 184
from physician's viewpoint, 159
Perception, 23, 28
disturbances of, 62
Periodic mania, 132
melancholia, 132
Persistent ideas, 78, 84, 140
Personal appearance, 168
Personality, 39, 40, 72
disturbances, 79, 81
double, 79
Petit mal, 147
Phantasy, 29
Phobias, 84, 144
Photisms and phonisms, 68
Pills, 191
Pleasure, morbid feeling of, 82, 117
Pons varolii, 4
Post-febrile psychoses, 97
Predisposition, 54, 59
acquired, 56
congenital, 55

Predisposition, hereditary, 55
Pressure of activity, 83, 88, 98, 130
Processes, mental, 17
Prolonged bath, 168
rest in bed, 175
Prophylaxis, 163
Psychic epilepsy, 148
Psychomotor activity, 83, 87, 98, 130
Psychosensory disorders, 62
Psychoses, degenerative, 130
of infection, 96
involutional, 130
Psychotherapy, 144
Puberty, 57
Punishment, 162
Pupils, anomalies, 113, 118
Pyromania, 88, 142

Reasoning, 30, 32
disturbance of, 75
Recognition, 28
Rectal feeding, 215
Recurrent insanity, 109, 132
Reflex action, 43
light, 120
Religious paranoia, 136
Remissions, 109, 122, 132
Reproduction, 25
Rest in bed, 174, 175
Restlessness, 83, 87, 98
Restraint, manual, 219
mechanical, 220

Salt solution, 100, 215
Scurvy, 215
Seclusion, 219
Seclusion, dangers of, 219
Self-consciousness, 39
Self-mutilation, 85
Senile confusion, 129
delirium, 129
dementia, 127
Senility, 59
Sensation, 27, 35, 39, 46
Senses special, 36
Sensory impressions, 24, 35, 37
projection field, 35
Sensory-motor mechanism, 42
Sex in etiology of insanity, 59
Sexual feelings, 86
function anomalies, 140
Sleep, 177
Sleeplessness, 91, 115, 130, 177
Somnambulism, 92
Speech, disturbances, 17, 117, 119
Spinal cord, 3
Statistics, epilepsy, 149
Status epilepticus, 147
Stereotypy, 89, 110
Stigmata of degeneration, 140
Stimulation, external, 35, 37
organic, 35, 37, 38
Stupor, catatonic, 111
Subconsciousness, field of, 33
Suggestibility, 90, 111
Suicide, 215
prevention, 216
Sulphonal, 182
poisoning, 182
Sympathetic nervous system, 1
Symptomatology, general, 62
Syphilis, 56, 113, 157

System, cerebrospinal, 1, 2
Systematized delusions, 78

Tact, 185
Thought, content of, 25
dilapidation of, 110
train of, 24, 73
Thyroid gland, 106
Thyroigenous psychoses, 106
Tics, convulsive, 142
Toxic psychoses, 101
Tracts, 9
association, 11
motor, 12
sensory, 15
Travel, 167
Trional, 182
Tuberculosis, 54, 56

Unconsciousness, 69
Untidiness, 119, 124, 190

Verbigeration, 89
Veronal, 183
Vicious habits, 218
Violence, 66, 217
Visual hallucinations, 66
Volition, complex, 45
definition, 45
disorders of, 86
simple, 45
Volitional impulses, 45

Weight, 168, 176, 210
boxes, test, 23
brain, 6
Weir Mitchell treatment, 175
Wet pack, 171
White matter, 3, 7
Will, diminished susceptibility, 86
hypersusceptibility, 91
weakness of, 90, 111

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