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SYNOPSIS OF LECTURES

ON

GENERAL PATHOLOGY,

TO BE DELIVERED IN THE

UNIVERSITY OF EDINBURGH,

DURING THE

SESSION MDCCCXXXVI-VII.

The following Synopsis has, from various causes, been very hurriedly prepared ; and the author is aware that it will therefore be found not only imperfect, but possibly also in several respects inaccurate. But as its use is intended solely for those who are to hear his illustrations of the topics enumerated in it during the ensuing winter-session, he ventures to hope that, notwithstanding its defects, it may assist them in the prosecution of their studies.

80. GEORGE STREET, 8th November 1836.

PART I.

GENERAL VIEWS OF MORBID ALTERATIONS IN STRUCTURE AND FUNCTION, CONSIDERED AS INDIVIDUAL OCCURRENCES, AND AS COMBINED IN PARTICULAR DISEASES.

DIVISION I.—GENERAL VIEW OF THE MORBID CHANGES
DISCOVERABLE IN THE PHYSICAL AND STRUCTURAL
CONDITIONS OF THE DIFFERENT TEXTURES, SYS-
TEMS, ORGANS, AND CAVITIES OF THE BODY; AND IN
THE PHYSICAL AND CHEMICAL QUALITIES OF THEIR
FLUIDS.

1. PNEUMATOSIS. Preternatural accumulation of gases.

Seats. In parts which in health contain a determinate quantity of air or gas; in parts not naturally containing any; of the latter those which have direct communication with the external air, and those which have not such communication.

Characters of the gases found in the various situations that have been mentioned.

Sources of these gases. The introduction of atmospheric air by natural or accidental passages. The decomposition of solid or fluid substances. Mechanical obstruction to the free passage of gases in parts which naturally contain them. The perforation of organs naturally containing gases and the consequent escape of these into other parts. Morbid exhalation.

2. ANÆMIA. Deficiency of blood, bloodlessness.

Extent. General and partial.

States of the textures and organs, and of the larger and smaller blood-vessels.

Characters of the fluids which these vessels contain.

3. CONGESTION. Turgescence of the vascular system.

Extent. General (plethora) and partial.

Seat. In what class or classes of vessels it has its seat. Manner in which they are affected.

Physical marks of congestion occurring in the progress of disease as distinguished from that which occurs immediately before death, or subsequently to it. Seats and causes of pseudo-morbid congestions.

4. HÆMORRHAGE. Escape of blood from the vessels in which it circulates.

Seats. On the surface of a cavity or canal ; in the substance of an organ.

Circumstances on which it depends ; the condition of the blood in respect of quantity and of quality ; the state of the general circulation.

Parts of the sanguiferous system by which spontaneous hæmorrhages are effected. The large vessels. The capillary system ; Distinction of capillary hæmorrhage into arterial and venous.

Distinction of hæmorrhage into that with visible solutions of continuity in the vessels, and that without visible solutions of continuity. Whether the latter be attributable to dilatation of the open terminations of blood-vessels ? or to dilatation of pores in their coats ? Correspondence of the terms Sanguineous Exhalation and Transudation with these two suppositions.

Means by which nature puts a stop to hæmorrhage. Constitutional and local.

Appearances of blood extravasated into different parts of the body at different lengths of time after its escape, and in different circumstances.

5. DROPSY. Preternatural accumulation of serum.

Its principal seats. Cellular tissue, subcutaneous and parenchymatous ; shut serous sacs ; mucous surfaces ?

Extent. General and partial.

Circumstances on which it depends. Whether attributable to excessive effusion, or to diminished absorption, or to both, severally or conjointly.

Characters of the circulating fluids.

Appearances of the membranes from which dropsical effusions have occurred, and of their vessels.

Chemical characters of dropsical fluids.

6. INFLAMMATION.

Its anatomical characters ; physical conditions of the blood-vessels ; causes of redness occurring in inflammation ; causes of swelling. Proposals to supersede the old term Inflammation by new terms.

Diversities of appearance according to acute, chronic, or specific character ; according to the texture affected.

Comparison of the appearances of inflammation with the different forms of congestion already noticed, and cases in which the distinction is difficult, if not impossible.

Terminations, local effects, or consequences of inflammation.

Several of these frequently co-exist.

a Resolution, or disappearance of inflammation.

b Effusion. Previous to this, the suspension of secretions from inflamed

membranes. Inflammatory effusion may consist in increased quantity of natural fluids ; or in the formation of preternatural fluids.

Serum, effused from surface of cutis ; into subcutaneous cellular texture ; into submucous cellular texture ; from mucous membrane. Physical and chemical varieties in the characters of inflammatory serum.

Coagulable Lymph, effused from serous membranes ; variations in the proportion of serum with which it is combined ; may be found loose in the cavity, or adhering to the surface of the membrane. Inorganizable and organizable ; pseudo or false membranes ; adhesions and adhesive bands—changes which they undergo. Influence of inflamed serous surfaces in exciting inflammation in sound surfaces with which they come in contact ; on what this may depend ; explanation it affords of certain cases of adhesion.

Effusion of lymph from mucous membranes—whether attributable to intensity of inflammation or to its specific character ; into substance of lungs, hepatization—whether removable by absorption : effusion into subcutaneous cellular texture ; round abscesses and foreign bodies ; over joints in rheumatic affections.

Induration of animal textures as a consequence of chronic adhesive inflammation ; softening or ramollissement as a consequence of inflammation. Difference between hardness and cohesion of animal textures, &c. In general, tendency of acute inflammation to soften, and of chronic to harden, most parenchymatous tissues.

Pus. Suppuration ; manner of effusion, or mode of formation. Whether ever independently of inflammation. Whether formed *without* the vessels, or *within* the vessels of inflamed parts, *i. e.*, whether a secretion. Physical and chemical qualities of pus ; variations in these. The secretion of pus occasionally the consequence of specific inflammation ; instances of its being endowed with specific properties.

Secretion of pus from natural membranes ; Mucous membrane. From a new-formed surface or pyogenic membrane ; seated on the surface of skin ; on divided surfaces, *wounds, ulcers*, &c. ; on serous and synovial membranes. From membrane lining the circulatory system. Into parenchymatous organs and deep-seated textures ; abscess and phlegmon ; circumscribed ; diffuse ; anatomical characters of each.

Presence of pus in the cavities of veins and absorbents ; its sources in these instances. Formation of abscesses in internal organs in cases of external injury, &c. ; their relations with phlebitis.

c Morbid absorption ; its different forms.

Ulcerative. On cutaneous texture ; on mucous membrane ; on synovial membrane, &c. ; whether constantly preceded by inflammation ?

Progressive. Tendency of abscesses, aneurisms, &c. to the surface of the body. State of cutaneous surface during progressive absorption.

d Mortification, including gangrene and sphacelus. Signification of these terms respectively.

Inflammatory and non-inflammatory mortification ; their synonymes.

Inflammatory gangrene may terminate in resolution, adhesive inflammation, disjunctive absorption, sphacelus.

Progress of mortification in different textures—skin, bones, mucous membranes (fallacy from exudation of lymph on their surface), serous membranes, lymphatic absorbent glands, cellular texture (nature of cores) ; power of arteries to resist mortification ; its occurrence in internal organs, as lung, liver, kidney, &c. Error of older Pathologists respecting the occurrence of mortification in these parts.

Dry gangrene. Changes usually met with in the part affected ; state of the bloodvessels of the part, and of their main trunks ; inflammation ; ossification.

Frequent concurrence of several morbid conditions in producing dry gangrene ; predispositions—from diseases of the heart—from age, &c.—influence of the state of the venous trunks ; supposed dependence on nervous influence.

e Granulation. Surfaces upon which it occurs.

Its successive stages ; effusion of a layer of coagulable lymph ; penetration of this with bloodvessels, nerves, and absorbents ; inosculation of bloodvessels ; cicatrization.

Dependence of granulation on inflammation ; whether constantly attended by suppuration ; necessity of a certain exposure to the external air for granulation ; effects of this being too long continued.

Contraction of granulations and elongation of old skin during cicatrization. Influence of this contraction on parts that admit of approximation.

Establishment of vascular connection between the general circulatory system and parts partially or totally disjoined, or parts of entirely new formation. Mode in which the new vessels are formed, and their communication with the original vessels established ; by the reunion of divided extremities or by the formation of new vascular substance ? In parts newly formed, do the new vessels begin in the substance of the effusion, or are they prolonged into it ? Supposed analogy with development in the chick. Experimental researches.

7. ALTERATIONS IN THE CONSISTENCE OF THE SOLIDS.

a Induration, from compression ; from fluids effused into the substance of the organ, *natural*, of nutrition, of secretion, or *morbid* ; from solids, *natural* or *morbid*.

b Softening, from inflammation ; from obliteration of arteries ; from modification of nutrition.

Restoration of a softened part to a healthy state.

Pseudo-morbid softening, from the chemical action of the gastric juice ; from maceration and putrefaction.

8. ALTERATIONS IN THE AMOUNT OF THE NATURAL SUBSTANCE OF THE SOLIDS.

Dependence of the natural form and intimate structure of the different textures and organs on the absorption and deposition of organic molecules. Different names assigned to these two processes. Disturbance of their equilibrium gives rise to Hypertrophy and Atrophy.

Hypertrophy from excessive activity of the nutritive secreting vessels ; from deficient activity of the absorbing vessels.

Atrophy from the reverse causes.

Variations in nutritive deposition and absorption, consistent with health.

Variations referable to disease. Extent ; general hypertrophy and atrophy ; local hypertrophy and atrophy constitute disease when they cause derangement in the action of an organ.

These changes may affect one or more of the component textures of an organ or part.

Relation of increase or diminution of substance with alteration of size in solid organs ; in hollow organs.

Connection of hypertrophy and atrophy with excessive action, with inflammation, with obstructed circulation, with disease of nerves.

9. HOMOIOPLASTIC FORMATIONS. The morbid development in abnormal situations of textures more or less analogous to some of those naturally existing.

Cellular texture—its production in the reunion of divided textures, as of natural cellular texture, muscle, nerve, &c. Its supposed spontaneous formation ; fallacy from the absorption (atrophy) of the proper texture of compound organs, the rudimentary cellular texture remaining.

Adipose, suety or stearoid substance—its formation in muscle ; in voluntary muscles, from disuse ; in the heart ; in parenchymatous organs, as liver, spleen, &c.

Muscular texture—its supposed formation in false membranes.

Mucous membrane—doubts as to its regeneration. Nature of the membrane lining old abscesses and fistulæ.

Serous membrane—its formation in serous cysts.

Synovial membrane—in false joints and bursæ.

Cutaneous texture—in mucous texture exposed to the air ; in ovarian tumours ?

Nails and horn.

Hairs and teeth—in fatty tumours of ovary, &c.

Cartilage—beneath the inner membrane of arteries, &c.

Bone—in muscles, cartilage, &c.

Vascular tissue—formation of new capillary vessels ; of larger arteries ; erectile tissue ; aneurism by anastomosis ; nævi materni.

General laws applicable to homoioplastic formations.

10. **HETEROPLASTIC FORMATIONS.** Development of morbid products, and formation of structures altogether foreign to the natural organization of the body. Synonymes.

Division into Cystic and Sarcomatous—

Cystic tumours. Simple serous cyst; synovial cyst or ganglion; melicerous, atheromatous, and steatomatous cyst; compound cystic tumour; cystic sarcoma of Mr Abernethy; compound cyst of Dr Hodgkin.

Sarcomatous tumours. Common vascular or organised sarcoma. *When with membranous intersections forming,* mammary sarcoma; pancreatic sarcoma; polypus; fibrous and fibrocartilaginous tumours; tubercle; scirrhus and cancer; encephaloid, cerebriform or medullary—simple or with effusion of blood and fungating—fungus hæmatodes; melanosis; compound cystic, areolar and sarcomatous tumor.

Progress of each species of tumour, from its earliest to its most advanced stage of development. The physical, anatomical, and chemical characters of each.

11. **ENTOZOA.**

Origin of entozoa. Different from any species of animals found out of living bodies. Some genera and species of entozoa confined to particular animals; others distributed pretty widely over the animal kingdom.

Those found in the human body. Those which inhabit the intestinal canal:—*Bothryocephalus latus*, *Tænia solium*, *Ascaris lumbricoides*, *Tricocephalus dispar*, *Oxyuris vermicularis*. Those inhabiting other parts of the body:—*Filaria medinensis*, *Polystoma pinguicola*, *Cysticercus cellulose*, *Trichinus spiralis*, *Hamularia subcompressa?* *Distoma hepaticum*, *Strongylus gigas?* *Echinococcus*.

Pseudo worms.

12. **CONCRETIONS.** Deposition of the saline ingredients and chemical principles of the different animal fluids.

Seats. In canals and cavities. In the substance of organs.

Circumstances which may occasion this deposition—Deficient quantity of the dissolving menstruum; excess of the saline, &c. ingredients. Presence of a foreign ingredient producing precipitation of some of the natural principles.

13. **ALTERATIONS OF CAPACITY** of cavities and canals. Dilatation. Contraction. Obliteration.

14. **ALTERATIONS OF POSITION.**

15. MALFORMATIONS.

From excess in development. From deficiency. From irregularity. Shall notice only those compatible with life, but laying a foundation for disease.

DIVISION II.—GENERAL VIEW OF THE DERANGEMENTS LI- ABLE TO OCCUR IN THE EXERCISE OF THE DIFFERENT FUNCTIONS OF THE ECONOMY.

Each of the Functions, corporeal and mental, may be performed with Increased or Diminished vigour, or the mode of its performance may be otherwise Altered, Perverted, or Vitiated: and the several processes, on the combined operation of which the performance of each particular function depends, may undergo similar derangements.

Derangements of function may depend on visible changes of structure; or may occur without any visible change.

How far the morbid phenomena of the animal body, occurring without visible change of structure, are referable to derangements of its vital properties, viz. Irritability, Sensibility, Nervous Energy, and Sympathy.

IRRITABILITY: of its various stimuli; and of the Facility and Force, or Mobility and Vigour, of muscular contraction.

Pathological Derangements.—Increased or diminished action—excessive vigour, or increased muscular tone; deficient vigour, or muscular debility; excessive mobility, or morbid irritability; deficient mobility, or torpor. Possible coexistence of opposite states of these derangements in different parts of the system. Circumstances immediately connected with the muscular fibres, that increase or diminish their vigour in contraction:—Bulk of muscle; tension of fibres.

Altered or vitiated action:—Indisposition to the natural alternate succession of contraction and relaxation, spasm; tendency to an excessively quick and frequent succession, convulsion.

SENSIBILITY.—Morbid derangements.—Increased or diminished acuteness. Dependence of these on the states of the different parts of the nervous system—On the state of the sentient extremities of the nerves; Influence of inflammation in increasing or diminishing sensibility; influence of temperature; of former impressions. On the state of the nervous trunks; Influence of their compression. On the state of the brain—Influence of its compression; of sleep, &c.; of supply of blood.

Perverted or Altered Sensibility; perception of objects not existing; perception of external objects otherwise than they really are; perception of the qualities of bodies different from what is usual to us.

ENERGETORY INFLUENCE. Physiological dependency of the functions of the economy upon this influence. Its agency in the physical and chemical phenomena of the economy. Morbid derangements. Increased, diminished and altered action.

SYMPATHY. What morbid phenomena are properly to be regarded as sympathetic? Different signification attached to the term sympathy by metaphysicians and physiologists; Mental and Corporeal sympathy. Division of corporeal sympathies into general and particular, and the double signification in which each of these has been understood—synergia and proper sympathy. Meaning of the terms active and passive sympathies. Reciprocal dependencies of the mind and body on one another; and dependencies of different corporeal organs and functions on one another—not referable to sympathies.

Reference of sympathetic phenomena to four classes, according as the supposed sympathetic effects manifest themselves:—1st, In the organs of the senses. 2d, In muscles usually subject to the will. 3d, In involuntary muscular organs; and, 4th, In organs of secretion. Illustrations of morbid phenomena correctly and incorrectly referred to these several classes.

DIVISION III.—GENERAL VIEW OF THE PRINCIPLES BY WHICH MEDICAL MEN ARE GUIDED IN RECOGNISING AND DEFINING PARTICULAR DISEASES.

The knowledge of the existence of diseases primarily derived from external phenomena; from these medical men endeavour to remount to a knowledge of internal conditions or proximate causes.

Circumstances on which distinctions of diseases should be founded. Whether on proximate causes or symptoms. Reasons for preferring the latter. The object of the nosologist in defining diseases, to ascertain and mark the more constant and uniform symptoms of each disease.

Symptoms, individually or collectively, the result of changes of structure or changes of function. Modes in which a knowledge of the presence of symptoms is attained. Information of the patient. Observation of the practitioner. Employment of the different external senses in detecting symptoms. Difference in the significations attached by some pathologists to the terms symptoms and signs, and symptomatology and semeiotics. Import of the old division of symptoms into *symptomata morbi, causæ et symptomatum*. Import of the terms diagnostic and prognostic symptoms. Division of diagnostic symptoms into characteristic or pathognomic, common and accidental. Old division of the accidental into *supervenientia, epiphenomena and epigenomena*.

Every combination or series of morbid symptoms observed to occur uniformly, or nearly so, in concurrence or succession, constitutes a particular disease. In establishing diseases, therefore, nosologists proceed on a conviction of the existence of an established and permanent order in the course of nature. Facts shewing that nosologists have not all been guided by the same general principles in distinguishing diseases. Two methods of arriving at the establishment of particular diseases, the analytical and the synthetical. Diseases really different may be confounded under one definition; or separate nosological diseases may be formed out of what are really only different forms of the same disease.

Import of the terms genus, species, and varieties, as applied to diseases. Difficulties in the practical application of definitions to the recognizing and distinguishing diseases. Diagnosis must be founded on the past history of a case, as well as on its present circumstances.

General rules to be observed in defining diseases. (a) To reject conjectures respecting proximate causes, and make use of external characters, particularly those which the physician can ascertain by observation. (b) To employ as much as possible symptoms that are present throughout the whole course of the disease. (c) To employ as many symptoms as are absolutely necessary for determining the disease, and no more.

PART II.

INDIVIDUAL SYSTEMS AND CLASSES OF ORGANS, CONSIDERED IN REFERENCE TO THE ALTERA- TIONS IN THEIR STRUCTURE AND FUNCTIONS, AND TO THE PARTICULAR DISEASES OF WHICH THEY ARE THE SEATS.

DIVISION I.—NERVOUS SYSTEM.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

A. Encephalon and its coverings—

a Dura mater—Congestion.—Hæmorrhage, on surfaces and between laminae.—Inflammation—effusion, of serum, of lymph, of pus; ulceration; gangrene.—Homoioplastic formations, fatty.—Heteroplastic formations, scrofulous, fungoid, scirrhus or carcinomatous, encephaloid.

b Arachnoid and pia mater—Congestion.—Hæmorrhage, on surfaces and into ventricles.—Dropsy, on surfaces and into ventricles.—Inflammation—effusion, of serum, of lymph, of pus.—Homoioplastic formations—cartilaginous, osseous.—Heteroplastic formations—*Cystic*; *Sarcomatous*, granulations, tubercles.—Entozoa.

c Encephalic substance—Congestion.—Hæmorrhage.—Inflammation—effusion, of serum, of lymph, of pus circumscribed and uncircumscribed.—Alterations of consistence—induration, softening, whether they occur independently of inflammation?—Alterations in amount of natural substance—hypertrophy, atrophy.—Homoioplastic formations—adipose, cartilaginous, osseous.—Heteroplastic formations—*Cystic*; *Sarcomatous*—simple albuminous tumour, tubercle, fleshy tumor, fibrous or carcinomatous, encephaloid, melanotic.

B. Spinal cord and coverings—

Congestion.—Hæmorrhage, into sheath and into substance.—Dropsy.—Inflammation—effusion, of serum, of lymph, of pus.—Alterations

of consistence—induration, softening.—Alterations in amount of natural substance—hypertrophy, atrophy.—Homoioplastic formations.—Heteroplastic formations—in membranes, in substance, tubercular deposits, encephaloid or fungating tumors.—Entozoa.

C. Cerebral and spinal nerves and their membranes—

Congestion.—Hæmorrhage.—Inflammation—effusion, of serum; ulceration.—Alterations in amount of natural substance—hypertrophy, atrophy.—Heteroplastic formations—painful subcutaneous tubercle? neuroma.

D Ganglionic system—

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTIONS.

View of the circulation within the cavity of the cranium, and of the cerebro-spinal fluid.

View of the attempts to refer particular functions to particular portions of the nervous system.

A. Pathological conditions of Sensibility—*a* External and *b* Internal.

Common or general tactile sensibility, increase—general over the body, local, experienced on pressure (tenderness), without pressure (pain); diminution or loss, general and local; perversion—morbid feelings in respect of temperature, pruritus, formication, prickling, tingling, &c. sensations referred to parts removed from the body.

B. Voluntary motion—

a Changes in movements performed voluntarily—general increase and diminution of muscular power, partial diminution or loss of power (palsy), irregular motions (tremor).

b Motions of voluntary muscles occurring independently of volition—convulsive (subsultus, chorea), partial, lateral, universal; spasmodic (cramp).

C. Intellect—

a Memory—increase, diminution or deficiency.

b Imagination—increase or excess, diminution or deficiency.

c Judgment—diminution or deficiency, perversion.

d Moral feelings—perversion.

D. Sleep—

Increase or excess—tendency to and length of time (somnia), intensity (coma and carus); diminution, u. s.; perversion—dreaming, incubus, somnambulism, starting, grinding of teeth, sudden and frightened waking.

III. PARTICULAR DISEASES.

Painful affections—Neuralgia, Cephalæa, Hemicrania; *Inflammatory affections*—Phrenitis, Meningitis, Arachnitis, Cephalitis, Encephalitis,

Hydrocephalus ; *Paralytic Affections*—Apoplexy, Palsy—Hemiplegia, Paraplegia, Partial ; *Convulsive affections*—Inward fits of children, Chorea, Shaking Palsy, Epilepsy. *Spasmodic affections*—Catalepsy, Trismus, Tetanus, Emprosthotonos, Opisthotonos, Hydrophobia. *Mental affections*—Hysteria, Hypochondriasis, Delirium, Mania, Nostalgia, Melancholia, Amentia, Dementia.

DIVISION II.—SANGUIFEROUS SYSTEM.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

A. The Heart as the central organ of circulation—

a Its coverings—Congestion.—Hæmorrhage.—Dropsy.—Inflammation ; effusion, of serum, of lymph, of pus.—Homoioplastic formations : cartilaginous, osseous.—Heteroplastic formations : *sarcomatous* ; tubercle, scirrhous, encephaloid, melanosis.—Entozoa.

b Its cavity, lining membrane, orifices and valves—Pneumatosis.—Inflammation : effusion, of lymph, of pus ; ulceration. Alteration in amount of natural substance : hypertrophy, atrophy.—Homoioplastic formations : cartilaginous.—Heteroplastic formations : steatomatous, vegetations and fungous excrescences, polypi.—Entozoa.—Concretions, calcareous ; loose bodies.

c Substance of the heart—Anæmia.—Congestion.—Inflammation ; effusion, of pus, diffused and circumscribed ; ulceration ; gangrene. Alterations of consistence : induration, softening.—Alterations in amount of natural substance : hypertrophy, atrophy.—Homoioplastic formations : fatty and greasy, cartilaginous, osseous.—Heteroplastic formations : *Cystic* ; *Sarcomatous*—tubercular, scirrhous, encephaloid, melanotic.—Entozoa ; hydatids.—Morbid alterations of capacity, with or without change in the thickness of the parietes ; dilatation and contraction of orifices and of cavities.—Malformations.

B. The Arteries—

Inflammation : effusion, of lymph, of pus ; ulceration ; gangrene.—Homoioplastic formations : cartilaginous.—Heteroplastic formations : in coats, steatomatous ; from internal surface, fungous excrescences.—Entozoa (in animals).—Morbid alterations of capacity : dilatation, of all the coats, of the outer coat ; varicose aneurism ; aneurismal varix ; contraction ; obliteration.

C. The Veins—

Inflammation ; effusion, of lymph, into cavity and between tunics, of pus ; ulceration ; gangrene.—Homoioplastic formations : cartilaginous ; osseous.—Heteroplastic formations : from internal surface, in

tunics.—Concretions : in tunics (calcareous) ; in cavities (phlebolites).—Morbid alterations of capacity : dilatation, varix, aneurism by anastomosis ; contraction ; obliteration.

D. The Capillaries—

Morbid alterations of capacity : dilatation.

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTIONS.

A. Pulsation of Heart and Arteries—

- a* Impulse, strength or force : increase ; diminution.
- b* Extent : increase, diminution.
- c* Frequency : increase ; diminution.
- d* Rhythm : irregularity.

B. Changes in their ordinary sounds—

- a* Intensity, and
- b* Extent.

C. New, unusual, or morbid sounds ; purring tremor, or *fremissement cataire* ; bellows murmur, or *bruit de soufflet* ; filing murmur, or *bruit de rape* ; sawing murmur ; whistling murmur, &c. ; leather crackle, or *craquement de cuir*.

D. Pain in the region of heart.

E. Morbid phenomena connected with the Veins—pulsations.

III. PARTICULAR DISEASES.

a HEART. General resemblance of the symptoms that accompany all forms of cardiac disease. Practical importance and difficulty of the distinction between organic and functional diseases of the heart, and also of the distinction between the inflammatory and the non-inflammatory diseases of this organ. Great diversities in the combination of organic affections of the heart occurring in individual cases, and consequent difficulty of establishing particular nosological diseases. Is any further division of the diseases of the heart necessary for the purposes of the medical practitioner than the following ?—

Cyanosis—Palpitation—Inflammatory affections ; pericarditis, carditis—Organic disease with increased and with diminished action—Angina pectoris—Syncope.—With the diseases of the heart may be joined, Aneurism of the aorta—Abdominal pulsation.

b Arteries ; Dilatation and Aneurism—Arteritis—Obliteration—Ossification.

c Veins ; Phlebitis—Obliteration—Varix.

d Capillaries.

DIVISION III.—RESPIRATORY ORGANS.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

- A. The Air-Tubes (comprehending the fauces, larynx, trachea, bronchi and bronchuli), as consisting of a mucous membrane and subjacent textures—Congestion.—Hæmorrhage.—Inflammation; effusion, of serum, of lymph, of pus; ulceration.—Alterations in amount of natural substance; hypertrophy, atrophy.—Homoioplastic formations; ossification of cartilages.—Heteroplastic formations.—Entozoa.—Morbid alterations of capacity; dilatation, contraction, obliteration.
- B. The Pleuræ—Pneumatoxis.—Hæmorrhage.—Dropsy.—Inflammation; effusion, of serum, of lymph, of pus; ulceration.—Homoioplastic formations; cartilaginous, osseous.—Heteroplastic formations; tubercle, carcinoma, melanosis.—Entozoa.
- C. The Pulmonary Parenchyma—Congestion.—Hæmorrhage.—Dropsy.—Inflammation; effusion, of serum, of lymph, of pus, diffused and circumscribed; ulceration; gangrene, diffused, circumscribed.—Alterations in amount of natural substance; hypertrophy, atrophy.—Homoioplastic formations; osseous.—Heteroplastic formations; tubercle, scirrhus, encephaloid; melanosis, true, spurious.—Entozoa.—Concretions; calcareous.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

- A. Voice. Changes in the characters, &c. of vocal sounds; (*a*) those heard independently of auscultation; diminution or loss of voice (whispering); alteration (hoarseness): (*b*) those audible on auscultation; bronchophony or laryngophony; pectoriloquy, perfect, imperfect, intermittent; ægophony.
- B. Dimensions of the chest; increase, diminution.
- C. Sounds emitted on succussion and percussion of the chest; increase of intensity, diminution.
- D. Physical phenomena of Respiration.
- a* Muscles called into action, and their mode of action. (*a*) Facility of respiratory motions—free, difficult, laborious, painful; (*b*) Degree—bulk of air inspired; complete, great, high, incomplete, small; (*c*) Frequency—time occupied in each respiration and its several parts; interval between successive respirations and their several parts; quick, accelerated, slow—Relations between the frequency of the pulse and of respiration in diseases; (*d*) Regularity; equal, unequal, intermittent, interrupted.

- b* Character of matters expectorated; mucous; purulent; bloody; tubercular; black.
- c* Changes in the respiratory murmur, or sounds emitted during respiration; (*a*) audible without auscultation, wheezing, hissing, crowing or crouping, stertorous, rattling; (*b*) audible with auscultation; puerile; tracheal or bronchial; cavernous; amphoric; râles, crepitous, sibilous, sonorous, mucous.
- Auscultatory sounds in the chest not connected with the voice, nor with respiratory murmur—metallic tinkling, friction murmur.
- d* Spasmodic motions performed by the respiratory muscles—sighing; yawning; hiccup; sneezing; cough; laughter.
- E. The Chemical phenomena of Respiration.
- a* Changes on the atmospheric air expired; temperature; odour; chemical composition; proportion of carbon.
- b* Changes in the blood; imperfect purification.
- F. Pain in chest independent of respiratory motions.

III. PARTICULAR DISEASES.

Coryza and Catarrh, Croup, Pertussis, Bronchitis, Phthisis Laryngea, Pleurisy, Pneumonia, Peripneumonia Notha, Hydrothorax, Empyema, Pneumothorax, Hæmoptysis, Tubercular Consumption, Aphonia, Asthma, Dyspnoea, Asphyxia.

DIVISION IV.—DIGESTIVE ORGANS.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

- A. The Mouth, Gullet, and Stomach, as consisting of a mucous membrane, and subjacent textures—
Pneumatosis.—Congestion.—Hæmorrhage.—Inflammation; effusion, of serum, of lymph, of pus; ulceration; gangrene.—Alterations of consistence; softening.—Heteroplastic formations; polypos; scirrhus and cancer; encephaloid.—Morbid alterations of capacity; dilatation, contraction.
- B. The Peritoneum, Omentum, and cavity of the Abdomen—
Pneumatosis.—Congestion.—Hæmorrhage.—Dropsy.—Inflammation; effusion, of serum, of lymph, of pus; ulceration; gangrene.—Homoioplastic formations; osseous.—Heteroplastic formations; *Cystic*; *Sarcomatous*, tubercle, fungus hæmatodes, melanosis—Entozoa.
- C. The Intestines, their mucous membrane, and glands, and their muscular coat—
Pneumatosis.—Congestion.—Hæmorrhage.—Inflammation; effusion, of lymph, of pus; ulceration; gangrene.—Alterations in amount of natural substance, hypertrophy, atrophy.—Heteroplastic

formations; tubercle; scirrhous and cancer; encephaloid; dilatation of veins.—Entozoa, worms.—Concretions.—Morbid alterations of capacity; dilatation; contraction; obliteration.

D. The Biliary Organs—

a The Liver.—Anæmia.—Congestion.—Inflammation—effusion, of pus, diffused and circumscribed; gangrene.—Alterations in amount of natural substance, hypertrophy, atrophy.—Homoioplastic formations, cirrhosis?; tubercles, circumscribed and diffuse; scirrhous; encephaloid; fungus hæmatodes; melanosis.—Entozoa.

b Gall-bladder, and ducts.—Hæmorrhage.—Inflammation; effusion, of pus; ulceration.—Alterations in amount of substance, atrophy.—Homoioplastic formations, osseous.—Heteroplastic formations, tubercles; scirrhous.—Concretions; calculi.—Morbid alterations of capacity, dilatation; contraction: obliteration.

E. Salivary glands and Pancreas with their ducts—Inflammation; effusion, of pus.—Alterations in amount of substance, hypertrophy, atrophy.—Heteroplastic formations, tubercles; scirrhous.—Concretions, calculi.—Alterations in capacity, dilatation of ducts—contraction—obliteration.

F. The Spleen—Anæmia.—Congestion.—Inflammation; effusion, of pus.—Alterations in amount of natural substance; hypertrophy; atrophy.—Homoioplastic formations; cartilaginous (of coat).—Heteroplastic formations, tubercles; scirrhous; encephaloid.—Entozoa.

G. The Lacteal vessels, Mesenteric glands and Thoracic duct—Congestion.—Inflammation.—Homoioplastic formations; cartilaginous; osseous.—Heteroplastic formations; tubercle; encephaloid.—Morbid alterations of capacity; dilatation of lacteals and thoracic duct; contraction.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

A. Mastication and Insalivation.

a Pathological affections of the secreting organs—of the mucous membrane of the mouth; of the salivary glands; increase of their secretion—diminution—vitiation; coatings of the inner surface of the mouth, teeth, &c.

b Affections of the muscular powers.

The tongue. Pathological affections of the motions connected with mastication and deglutition; protrusion—difficult, lateral, tremulous.

The masseter and temporal muscles; their spasmodic contraction.

B. Deglutition.

- a Pathological changes in the secretion from the mucous membrane of the pharynx and gullet.
- b Morbid affections of the muscular power of these organs ; diminution or palsy ; spasm.

C. Digestion,

- a Morbid sensations connected with appetite and thirst ; nausea.
- b Secretions of the stomach ; morbid variations in their quantity and quality.
- c Pathological conditions of its muscular power ; deficient—irregular, (retching, vomiting).
- d Characters of the matters vomited ; *Physical* qualities—odour, colour ; *Chemical*—watery, bilious, bloody, acid, black.

D. Chylous absorption—
Deficient ?

E. Progress of food through the intestinal canal.

- a Its mixture with the bile ; morbid changes in the secretion of that fluid ; in its quantity ; in its qualities, physical and chemical ; in its excretion.
- b Its mixture with the pancreatic juice ; morbid affections of the secretion, and excretion of that fluid.
- c Derangement of the muscular power or peristaltic motion ; increased ; diminished or impeded ; inverted.

F. Defecation—

Morbid affections in respect of frequency ; power of control ; difficulty—character of evacuations, feculent ; watery ; mucous ; bilious ; bloody ; white ; black ; skinny substances, &c.

G. Morbid changes in the size of the abdomen—

Increase ; diminution, general and partial.

H. Sounds heard on percussion and auscultation.

I. Pain and tenderness—in parietes ; in internal organs.

III. PARTICULAR DISEASES.

Cynanche, Dysphagia, spasmodica, paralytica, organica.—Gastritis, Dyspepsia, Cancer of the stomach, Hæmatemesis.—Enteritis, Diarrhæa, Dysentery, Cholera, Colica, colica pictonum, Obstipatio, Ileus, Alvine concretions, Intestinal worms, Hæmorrhoids.—Peritonitis, Tympanites, Ascites, Tabes mesenterica.—Hepatitis, Jaundice, Gall stones.—Splenitis, Splenalgia, Ague cake.—Inflammation of Pancreas, organic disease.

DIVISION V.—URINARY ORGANS.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

A. The Kidneys and Ureters—

Anæmia.—Congestion.—Hæmorrhage.—Inflammation; effusion, of pus, from internal surface and into substance.—Alterations in amount of natural substance; hypertrophy, atrophy.—Homoio-plastic formations; cartilaginous, osseous, greasy or fatty.—Heteroplastic formations; *Cystic*, serous cysts; *Sarcomatous*, granulations, tubercles, scirrhus, encephaloid, melanosis.—Entozoa; hydatids, worms?—Concretions; calculi.—Morbid alterations of capacity; dilatation, contraction, obliteration.

B. The Prostate—

Inflammation; effusion, of pus.—Alterations in amount of natural substance; hypertrophy, atrophy.—Homoioplastic formations.—Heteroplastic formations; scirrhus.—Concretions; calculi.

C. Bladder and Urethra—

Congestion.—Hæmorrhage.—Inflammation; effusion, of lymph, of pus, on inner surface and between the coats, ulceration, gangrene.—Alterations in amount of natural substance; hypertrophy, atrophy.—Homoioplastic formations.—Heteroplastic formations; vegetations and fungous tumours, polypi, tubercles, scirrhus, encephaloid, melanosis.—Concretions; Urinary calculi, viz. lithic, bone earth, ammoniaco-magnesian phosphate, fusible, oxalate of lime or mulberry, cystic oxide, xanthic oxide, alternating, compound, fibrinous.—Morbid alterations of capacity: dilatation, general, partial; contraction.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

A. Secretion of Urine—

a Changes of quantity; increase, diminution or suppression.

b Changes in quality: *Physical*; colour, odour, consistence, temperature. *Chemical*; 1. changes in the proportion of the natural ingredients, viz. water; urea; lithic, lactic, muriatic, phosphoric, and sulphuric acids; saline constituents and mucus. Production of (*a.*) Amorphous sediments, (*b.*) Crystalline sediments or gravel, and (*c.*) Calculi. 2. Changes from the addition of new principles existing in the blood or in the natural secretions, as albumen, fibrin, hæmatozin, blood, bile, caseine. 3. Changes from the addition of principles foreign to the urine, and to the blood, &c.; oxalic, carbonic, benzoic?, purpuric, melanic, and hydrocyanic? acids; fatty matter; sugar. 4. Changes from substances mingling with the urine between its secretion and excretion; pus and hairs.

B. The Excretion—

Morbid changes in respect of frequency ; power of control ; difficulty, impeded ; over-distention of bladder.

C. Pains in the course of the urinary organs.

III. PARTICULAR DISEASES.

Nephritis, Nephralgia, Ischuria, Gravel, Renal calculus, Diabetes, Tubercular diseases of kidney.—Cystitis, Catarrhus vesicæ, Strangury, Hæmaturia, Calculus, Palsy, retention, enuresis ; enlargement of prostate.—Gonorrhœa, Stricture of urethra.

DIVISION VI.—MALE REPRODUCTIVE ORGANS.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

A. The Penis and Scrotum.

B. The Testicle and its immediate coverings—

a. Tunica vaginalis and its cavity—Hæmorrhage.—Dropsy.—Inflammation ; effusion, of serum, of lymph, of pus.—Homoioplastic formations ; cartilaginous, osseous.—Concretions ; loose cartilages.

b. Substance of Testicle—Inflammation ; effusion, of lymph, of pus ; gangrene.—Alterations in amount of natural substance ; atrophy.—Homoioplastic formations ; cartilaginous, osseous.—Heteroplastic formations ; *Cystic*, serous cysts ; *Sarcomatous*, tubercle, scirrhus, encephaloid, melanosis.—Entozoa ; hydatids.—Malformations ; testicle not descended.

C. The Vas Deferens and Vesicula Seminalis—

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

A. Secreting Power—

Morbidly increased ; diminished.

B. Excreting Power—

Morbid derangements in respect of frequency, and power of control ; impeded.

C. Pain in the testicle.

III. PARTICULAR DISEASES.

Ulcers of penis, syphilitic, &c. ; cancer penis, chimney-sweeper's cancer.—Hydrocele, Hæmatocele ; cartilaginous bodies in the cavity of the tunica vaginalis.—Hernia humoralis or Orchitis ; chronic inflammation and tubercular disease ; malignant disease ; Varicocele.

DIVISION VII.—FEMALE REPRODUCTIVE ORGANS.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

A. The Ovaries and Fallopian Tubes—

a. Ovaries.—Congestion.—Inflammation ; effusion, of lymph, of pus.—Alterations of consistence ; softening.—Alterations in amount of natural substance ; hypertrophy, atrophy.—Homoioplastic formations ; cartilaginous, osseous, of coat and of substance ; fatty tumours containing hair, teeth, &c.—Heteroplastic formations ; *Cystic*, serous cysts attached to peritoneal coat and in substance, various in respect of parietes and of contents ; *Sarcomatous*, fibrous, scirrhus, encephaloid, melanose.—Entozoa.

b. The Fallopian Tubes.—Congestion.—Dropsy.—Inflammation ; effusion, on outer surface and into cavity, of lymph, of pus.—Homoioplastic formations in peritoneal covering and in substance ; osseous, cartilaginous.—Heteroplastic formations ; *Cystic*, serous cysts ; *Sarcomatous*, tubercle, encephaloid.—Concretions ; calcareous.—Alterations of capacity ; dilatation, contraction, obliteration.

B. The Uterus—

Pneumatosis.—Congestion.—Hæmorrhage.—Dropsy.—Inflammation ; effusion, of lymph, of pus ; ulceration, gangrene.—Alterations of consistence ; induration, softening.—Alterations in amount of natural substance ; hypertrophy, atrophy.—Homoioplastic formations.—Heteroplastic formations ; *Cystic*, serous cyst ; *Sarcomatous*, polypus, fibrous tumour, tubercle, scirrhus, encephaloid, melanosis.—Entozoa.—Concretions.

C. Vagina—

Hæmorrhage.—Inflammation ; effusion, of lymph, of pus, simple and specific ; ulceration, gangrene.—Heteroplastic formations ; vegetations, polypus.

D. Mamma—

Congestion.—Hæmorrhage.—Inflammation ; effusion, of lymph, of pus.—Alterations in amount of natural substance ; hypertrophy, atrophy.—Homoioplastic formations ; adipose, osseous.—Heteroplastic formations ; *Cystic* ; *Sarcomatous*, chronic mammary, scirrhus, encephaloid.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

A. Menstruation :

a. Commencement—precocious, tardy.

- b. Progress—morbid derangement in respect of frequency, quantity, quality; painful, vicarious.
 - c. Cessation—premature, tardy.
- B. Secretion from Mucous Surface:
Mucous, purulent, bloody, coagulable lymph.
- C. Conception and Gestation:
Barrenness; extra uterine.
- D. Parturition.
- E. Lactation:
a. Secretion; derangements in respect of quantity—excess, deficiency; and of quality.
b. Excretion; involuntary, difficult, painful.

III. PARTICULAR DISEASES.

Ovarian dropsy, ovarian sarcoma.—Metritis, Leucorrhæa, Prolapsus, Polypus, Cancer, Dysmenorrhæa, Amenorrhæa, Menorrhagia.—Inflammation of mamma; chronic inflammation, tubercular disease, &c.; malignant diseases.

DIVISION VIII.—ORGANS OF SENSE.

A. The EYE, as consisting of Membranes, proper and capsular,—and of Humours.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

Congestion.—Hæmorrhage.—Dropsy.—Inflammation; effusion, of lymph, of pus; ulceration.—Alterations in amount of natural substance; atrophy.—Homoioplastic formations; ossification.—Heteroplastic formations; fungus hæmatodes; melanosis.—Entozoa.—Alterations of position; prolapsus.

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTIONS.

- a. As an organ of sense. Increased sensibility; this consists rather in pain on exposure to light, than increased visual sensibility; on what nerves does it depend? Diminution or loss of visual sensibility as depending on state of retina, of optic nerve, and of brain. Vitiating visual sensibility—*Dysopia*; objects seen only in a certain degree of light (hemeralopia and nyctalopia); at a given distance (presbyopia and myopia); in a particular position. *Pseudoblepsis*; objects seen differently from what they really are; objects conceived to be seen that do not exist, spectral illusions.

- b. Morbid affections of the motions of the eye-ball—squinting.
- c. Morbid affections of the secretions connected with the eye.

III. PARTICULAR DISEASES.

Ophthalmia; iritis. Cataract. Amaurosis.

B. The EAR,—as consisting of the External Auditory Canal; the Tympanum and Eustachian Tube; and the Labyrinth.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

Inflammation; effusion, of lymph, of pus; ulceration.—Heteroplastic formations; polypi.—Concretions; hardened wax.—Alterations of capacity; dilatation of auditory canal; contraction; obliteration.—Malformations; congenital imperforation and narrowness.

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTION.

Increased acuteness of hearing (hypercusis). Diminished acuteness (dyssecœa and cophosis). Vitiations (paracusis); sounds or noises producing an impression on one or both ears different from what they usually produce, without apparent increase or diminution of sensibility; hearing sounds double; false judgments of the direction of sound; sounds arising independently of atmospheric vibrations, aural illusions.

III. PARTICULAR DISEASES.

Otalgia. Otitis. Deafness.

C. The Nose, as the organ of Smell.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

Hæmorrhage.—Inflammation; effusion, of serum, of mucus, of pus; ulceration.—Heteroplastic formations; polypus; sarcomatous tumours.

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTIONS.

- a. Changes in the secretion. Increase; diminution; vitiation.
- b. As an organ of sense. Increased sensibility to smell. Diminution or loss of sensibility (anosmia). Perversion; relish for odours ordinarily disagreeable.

III. PARTICULAR DISEASES.

Ozæna. Polypus.

D. TONGUE, as the organ of Taste.

I. MORBID ALTERATIONS IN ITS PHYSICAL AND STRUCTURAL CONDITIONS.

Inflammation; effusion, of serum (aphthæ?), of lymph, of pus.—Alterations in amount of natural substance; hypertrophy.—Heteroplastic formations; meliceris; scirrhus and cancer.

II. MORBID ALTERATIONS IN THE EXERCISE OF ITS FUNCTIONS.

Increase, diminution, and vitiations in the secretion; degrees of moisture, and different kinds of crusts or coatings to which these give rise. Diminished sensibility; perverted sensibility.

III. PARTICULAR DISEASES.

Glossitis. Cancer.

E. COMMON INTEGUMENTS,—consisting of inorganic parts and of organic parts.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

In the physical conditions of the inorganic parts,—the cuticle, the nails, and the hair. Of the organic parts,—the cutis vera, the subcutaneous cellular and adipose textures. Pneumatosis.—Anæmia.—Congestion.—Hæmorrhage.—Dropsy.—Inflammation; effusion, of serum, of lymph, of pus; ulceration; gangrene.—Alterations of consistence; induration.—Alterations in amount of natural substance; hypertrophy.—Homoioplastic formations.—Heteroplastic formations.—Parasitic animals.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

a. As organs of Secretion. Of the perspiration or sweat, and of oily and sebaceous matters. Cutaneous perspiration vicarious with renal secretion.

b. As an organ of Sense. Already considered under the Nervous System.

III. PARTICULAR DISEASES.

Reference of cutaneous diseases, by Drs Willan and Bateman, to the eight orders of papulæ; squamæ; exanthemata; bullæ; pustulæ; vesiculæ; tubercula; maculæ. Recent attempts to improve upon this classification.—Emphysema; œdema and anasarca; tumours—mild, malignant.

DIVISION IX.—ORGANS OF LOCOMOTION.

I. MORBID ALTERATIONS IN THEIR PHYSICAL AND STRUCTURAL CONDITIONS.

A. The Muscles and Tendons—

Inflammation; effusion, of pus; ulceration; gangrene.—Alterations in amount of natural substance; hypertrophy; atrophy.—Homoio-plastic formations; adipose; cartilaginous; osseous.—Heteroplastic formations; *Cystic*, serous cysts; *Sarcomatous*, tubercle; scirrhous; encephaloid; melanosis.—Entozoa.

B. The Bursæ Mucosæ—

Inflammation; effusion, of pus.—Concretions.

C. The Bones, and their Membranous covering—

Inflammation; effusion, of lymph, of pus; ulceration; gangrene.—Alterations of consistence; induration; softening.—Alterations in amount of natural substance; hypertrophy; atrophy.—Heteroplastic formations; osteo-sarcoma or steatoma; carcinoma; encephaloid; aneurism.—Entozoa.

D. The Joints and Ligaments—

Hæmorrhage.—Dropsy.—Inflammation; effusion, of serum, of lymph, of pus; ulceration.—Homoioplastic formations; cartilaginous; osseous.—Heteroplastic formations; tubercle; carcinoma; encephaloid.—Concretions; cartilages, loose and attached; gout stones.

E. The Spinal Column—

Inflammation; effusion; ulceration.—Alterations of consistence; softening.—Alterations of position; curvature.—Malformations; fissure.

II. MORBID ALTERATIONS IN THE EXERCISE OF THEIR FUNCTIONS.

Morbid sensations; stiffness. Morbid noises; crackling.

III. PARTICULAR DISEASES.

Periostitis; exostosis; caries; necrosis; tumours in bones; mollities.—Inflammation of joints; white swelling; cartilages in the joints; rheumatism; gout; rickets; curved spine; psoas abscess.

PART III.

ÆTIOLOGY, AS TREATING OF THE NATURE AND ACTION OF THE VARIOUS CAUSES, WHICH BY THEIR OPERATION ON THE ECONOMY ALTER ITS ORGANIZATION, OR DISTURB THE REGULAR EXERCISE OF ITS FUNCTIONS, AND THUS GIVE RISE TO DIFFERENT STATES OF DISEASE.

 DIVISION I.—GENERAL REMARKS.

Remarks on the relation which subsists between physical *Causes* and their *Effects*, and on the signification which in medical reasonings ought to be attached to these terms.

Morbific causes are for the most part the same powers as Hygienic means and Therapeutical agents,—*i. e.*, as those agencies which, under other circumstances, serve to maintain the economy in a state of health, or to restore it from a morbid to a healthy condition.

Division of Morbific causes into Material and Mental—

The Material operate on the physical constitution, the chemical composition, or the vital powers of the economy.

The Mental act upon the economy either directly or more remotely.

The different kinds of causes may operate simultaneously; and the same cause may exert different modes of operation.

Employment of the term Remote Causes to designate Morbific Agencies, and its relation to that of Proximate Causes. Circumstances which render the investigation of morbific causes peculiarly difficult.

Division of remote causes into Predisposing and Exciting; and signification of these terms.

The same agents may act as Predisposing and as Exciting Causes.

Predispositions are in some respects pathological states, or morbid conditions of the economy. They may be common, hereditary, or acquired.

Division of Exciting Causes into specific, and general or common. Signification of these terms.

Specific Causes are of two kinds, 1. Terrestrial Exhalations, and 2. Animal Contagions—Effluvia and Secretions from animal bodies.

General or Common Exciting Causes are referrible to the following classes:—

1. The common supporters of life, including atmospheric air, heat, and diet,

2. Substances usually employed as medicines.
3. Animal, vegetable, and mineral poisons.
4. Habits of the mind and body.
5. Mechanical injuries.
6. Chemical agents.

DIVISION II.—PREDISPOSITIONS TO DISEASE, COMMONLY CALLED PREDISPOSING CAUSES.

General liability of mankind to disease.

Peculiar susceptibilities. Hence the same exciting cause may produce different diseases in different persons ; and hence, also, the same disease may exhibit in different individuals much variety in its general characters.

Objection to the term Predisposing Causes. Sense in which food, age, constitution, &c. have been represented as predisposing causes of diseases.

View of predispositions as biases or tendencies to disease, which facilitate the operation of morbid causes.

Difference of Predispositions—in extent ; in degree—ranging between perfect health and absolute disease.

Common Predispositions—age, sex, constitution.

Hereditary Predispositions—gout, scrofula, madness, &c.

Acquired Predispositions—conditions of body produced by climate, food and drink, habits of exercise, clothing, waking, sleeping, &c.

1. Common Predispositions.

a. Age as giving a predisposition.

1st, Liability of different ages to disease in general.

2d, Different forms which disease assumes in successive periods of life.

b. Sex.—Particular predispositions connected with the reproductive functions.

c. Constitution.—Signification of the term. Attempts to mark particular constitutions by definite external characters, and to ascertain the intimate variations of organization on which they depend. Difficulties of this inquiry.

Different degrees of Constitutional Predispositions.

a. Aptitudes for, or Susceptibilities of, Disease.—Peculiar insusceptibilities of disease.—Illustrations of each.

b. Constitutions, according to the familiar acceptance of the term, as denoting the degree of physical force and general susceptibility of disease.

c. Temperaments, as manifested by peculiarities of appearance. External and observable circumstances on which distinctions of temperaments have been founded. Internal conditions of the body which may be sup-

posed to give occasion to temperaments. Ancient doctrine of the four humors, and their corresponding temperaments. Views of Cullen, Hallé, &c. and addition of the nervous as a fifth temperament. Influence of temperaments in predisposing to particular diseases, and in modifying those which occur.

d. Idiosyncrasies.—Examples.

e. Diatheses.—Diseases if not actually established, at least in a certain progress of advancement. General Diatheses—as phlogistic, dropsical, hæmorrhagic, cancerous, scrofulous, gouty. Particular Diatheses—as consumptive, calculous. General diatheses as manifesting themselves over a considerable extent of the body, or in a particular part only.

Difference between diatheses and temperaments. Illustration from inflammatory diathesis and sanguineous temperament.

Signification attached to the term Diathesis by some Italian pathologists.

Diathetical diseases, when they occur in several parts of the body at the same time, may be identical in these different situations; or, analogous in respect of general character, though differing in respect of the textures affected; or, they may differ both in the textures affected and in general character.

2. Hereditary predispositions and hereditary diseases. Import of the terms. Number of such predispositions and diseases,—in the nervous, circulatory, and lymphatic systems;—in the respiratory, digestive, and locomotory organs;—and in the cutaneous texture.

Differences in degree of hereditary predispositions.

Development of hereditary diseases. General observance of the same course in the offspring as in the parent. This not uniform. Circumstances accelerating or retarding the development of hereditary predispositions. Occasional cessation in one generation, and reappearance in a subsequent one. Other diversities.

3. Acquired Predispositions.

Their dependence on agencies which may operate as the exciting causes of disease. Difficulty of saying where the predisposing action of morbid causes ends, and their exciting action commences.

Predispositions to a particular disease seldom occur singly, but generally combined in greater or less number in the same person.

Sense in which different professions are regarded as a source of predispositions to disease. Illustrations. Classification of professional persons according to the nature of the morbid agents to which they are exposed.

1. Those who inhale vapours, powders, or particles, with the air which they breathe.
2. Those who respire a confined and impure air.
3. Those who are constantly exposed to vapour and wet.
4. Those who work in places heated to a high degree.
5. Those who are confined by their employments to constrained

positions. Subdivision of these according to the part of the body on which the constraint principally falls.

6. Those who exercise particular parts of the body in a degree that proves injurious to them.
7. Those who are exposed, by the nature of their employment, to morbid causes of a mental character.

General comparison of mortality in manufacturing and agricultural districts.

DIVISION III.—EXCITING CAUSES OF DISEASE.

A. Specific.

1. CONTAGION.

a. Definition of terms Contagion and Contagious disease.

The general doctrine of contagion founded on the points of similarity and difference subsisting between contagious diseases in regard to their propagation.

Import of the terms Sporadic, Epidemic, and Endemic.

b. Differences in the modes in which contagious diseases may be communicated—*a* By visible and palpable matter. *b* By imperceptible effluvia.

Division of contagious diseases, founded on their modes of communication, and diseases referrible to each class:

1. Those communicable exclusively by contact and inoculation. 2. Those communicable both by contact and inoculation, and through the medium of the atmosphere. 3. Those communicable exclusively through the atmosphere.

c. In what parts of the body are the different contagious principles, palpable and impalpable, formed?

Do the different solids and fluids of the body become imbued, in the progress of contagious diseases, with the principle of contagion?

d. Channels or atria through which contagious principles can be introduced into the animal system, according as the introduction is effected by a palpable vehicle, or through the atmosphere.

e. Indirect communication of contagions through fomites. Diversities of opinion on this subject. Length of time during which fomites may retain the contagious principles which they have imbibed, and circumstances influencing this. Whether an unaffected person can act as a fomes. Communication of contagious diseases to the child in utero.

f. Signification of the term Latent Period of Diseases. Diversities in the length of this period in different contagions, and in different circumstances of the same contagion. Instances of contagious infection, in which it has been supposed that no latent period occurred.

g. Susceptibility of particular contagions, to be communicated from one species of animal to another. Diseases of brute animals, which seem to be communicable to the human species. Diseases of the human species that seem capable of being transferred to animals.

h. Period of contagious diseases during which the contagious principles are generated: whether in any instances during the latent period? whether subsequently to death?

i. Origin of particular contagions, considered in reference, 1st, to the earliest accounts we possess of each particular contagious disease, and the quarter of the globe in which it seems to have been first known; and, 2d, to the reappearance of particular contagious diseases at particular places, after longer or shorter intervals of absence. Doctrine of the generation of contagious diseases *de novo*.

k. Immunity of particular individuals from particular contagious diseases; sometimes temporary. Proportion of persons unsusceptible of particular contagions.

l. Diversity of contagions as they affect the body once or oftener. Exaggeration that has existed in the notions entertained respecting the immunity afforded by having once passed through a disease, against its recurrence.

m. Possibility of the simultaneous occurrence of two contagious diseases in the same person. Occasional suspension of one contagious disease on the supervention of another.

n. Influence of climate, temperature, and season, over the contagious properties of certain diseases. Whether temperature and climate can communicate a contagious character to an uncontagious disease? Morbid constitution of the atmosphere supposed necessary to the epidemic prevalence of a contagious disease.

o. Validity of the opinion that the severity of a contagious disease is proportional to the quantity of poison introduced into the system.

p. Distance to which the influence of different contagions extends. Difficulties of the inquiry, and sources of fallacy. Regulating circumstances. Illustrative experiments and observations. Practical applications of these facts in the establishment of fever hospitals, &c.

q. Tendency of contagious diseases, during different epidemics, or different periods of the same epidemic, in a greater or less degree, to confine their attacks to persons of a particular age, of a particular sex, to a particular class of society, and even to particular varieties of the human race.

r. Variations in the severity and rate of mortality of the same contagious diseases, during different epidemics and different periods of the same epidemic.

Illustration of these general principles respecting contagion from the propagation of some particular contagious disease, as typhus, scarlet fever, or small pox. Difficulties of their application evinced in the controversies which subsist respecting the contagious character of different diseases, as yellow fever and Indian cholera.

2. MARSH MIASMA.

The supposed exciting cause of intermittent and remittent fevers. Doubts as to whether it be the sole cause. General view of our knowledge respecting the influence of marshes in the production of intermittent and remittent fevers.

a. Proofs of marshes being a source of these fevers. Positive proof, from their occurrence in the vicinity of marshes. Negative proof, from their disappearance in countries and districts which have been drained. Illustrations from London, and from different parts of Scotland, particularly Edinburgh.

b. Circumstances under which marshes give rise to intermittent and remittent fevers. The extrication of vapours from vegetable and animal matters during their decomposition. Circumstances favouring this decomposition; certain degree of moisture; contact of air; heat. Diversities in the periods at which intermittent fevers occur in different seasons and climates as dependent on the influence of these agents. Influence of rain in promoting the extrication of miasmata from the soil, and their diffusion through the atmosphere. Influence of easterly winds, in this country and other parts of Europe, in inducing and reproducing intermittent fevers. Variations in the production and extrication of marsh effluvia dependent on the joint influence of seasons and of local circumstances.

c. Attempts to ascertain the chemical and physical nature of marsh poison or malaria.

d. Mode in which malaria is introduced into the economy.

e. Distance from its source at which marsh miasma retains its morbid power. Reasons for thinking this distance to be inconsiderable. Opposite opinion, which refers the agues of the east coast of Great Britain to the marshes of Holland.

f. Tendency of marsh poison to be confined chiefly to the strata of the atmosphere nearest to the surface from which it emanates.

g. The operation of marsh poison much more powerful during the night than during the day. Circumstances on which this may be supposed to depend.

h. Duration of the latent period or interval between the application of marsh miasmata to the body, and the production of their specific effects.

i. Renewal of marsh fever, without fresh exposure to marsh poison.

k. Seasons of the year in which intermittent fevers usually prevail in mild climates. Importance of the distinction of these fevers into vernal and autumnal. Origin of vernal intermittents.

l. Varieties in the effects of marsh malaria depending on differences of climate.

View of the facts and arguments recently adduced to prove that intermittent fevers may occur where no marshes exist; or even where there is no reason to suspect the occurrence of herbaceous decomposition.

Reference of West India fever to ligneous decomposition. Extended enumeration of localities which are alleged to be capable of giving rise to intermittents.

Whether fevers from malaria ever become contagious.

B. Common exciting causes—

1. The Common Supporters of Life.

ATMOSPHERIC AIR.

Remarkable uniformity in the chemical composition of the atmosphere in situations which admit of ventilation. Vitiations to which it is subject in confined places; and the morbid operation of these.

Variations in its different physical conditions, and the influence which each of these exercises in deranging the functions of the human economy and inducing disease.

a. Variations in *pressure* and *density*—diminution and increase. Effects produced on the economy by temporary and permanent exposure to considerable diminution or considerable increase of atmospheric pressure and density. Comparative salubrity of elevated and other situations.

b. Variations in atmospheric *temperature* to which the body is exposed—excessive and deficient. From causes of a permanent nature, as climate and season, and from others of a more temporary description. Solar heat of the sun as giving a predisposition to particular diseases; as an immediately exciting cause. Effects of exposure to the action of air heated to a great degree by artificial means. Influence of this on the healthfulness of different professions.

Injurious action of cold upon the body. On the nervous system, in impairing sensibility; in producing tendency to sleep, or a state resembling intoxication. On the respiratory organs; disturbance of respiration; immediate death from inhalation of cold air.

Effects of sudden transitions from heat to cold and from cold to heat.

c. Variations in the *humidity* or *moisture* of the atmosphere. Their influence in deranging the functions of the human economy or in inducing diseases. Reasons for thinking that an atmosphere loaded with pure moisture has no particular tendency to produce diseases. Cold and moisture. Warmth and moisture. Professions exposing workmen to the latter kind of atmosphere, and the influence of these upon health.

d. Variations in the *electrical* conditions of the atmosphere, and the effects which they produce. Effects of lightning.

e. Variations in the *motion* and *rest* of the atmosphere, and the influence of variable, periodic, and permanent, winds in the production of diseases—the harmattan, the sirocco. Dependence of the injurious effects of winds on the surface over which they blow; wind of Egypt; comparison of the sirocco wind in Sicily and in Corfu. Prejudicial operation of the east wind in different regions. Prejudicial effects said to result from unusual stillness of the atmosphere.

Various combinations in which the different physical conditions of the atmosphere occur in particular seasons and in particular regions of the globe, and their morbid influence in such combinations.

Temperate regions. General characters of their seasons in relation to the physical conditions of the atmosphere. General character of particular seasons and months in regard to their healthfulness, and the particular diseases occurring in each. In reference to the healthfulness of a season, necessity of attending not only to the present prevailing state of the air and weather, but also to their preceding conditions. Comparative prevalence of particular classes of diseases in different seasons, those of the head, of the chest, of the digestive organs. General mortality of different seasons. The influence of seasons on mortality not a simple result, but dependent on local circumstances. Illustration from the change that has occurred since the period of the last plague in the comparative healthfulness of the different seasons in London. Variations in the seasons of different years. General character of the years most healthy in this climate. Popular opinion of a cold season being more healthy than a warm one.

Influence of seasons on the general character and results of diseases, much more uniform in the Torrid and in the Frigid zones than in the Temperate regions of the globe.

Seasons of the West Indies, and corresponding prevalence of diseases. Influence of the character of the seasons in the West Indies, and all tropical climates, on the bilious or inflammatory character of the endemic diseases. Seasons and climate of different parts of the East Indies, and corresponding prevalence of diseases. Climate and seasons of different parts of the coast of Africa.

Frigid zone. Climate of Spitzbergen. Morbid effects of the low temperature in the degree in which the Greenland sailors are exposed to it. Results of the recent expeditions to the polar regions in reference to the health of the sailors.

Difference in the effects of climates on natives and on strangers. Effects produced on the economy by passing from one climate to another.

DIET AS A CAUSE OF DISEASE.

Morbid effects produced by various sorts of foods and drinks.

Diet as excessive or defective in quantity. Habitual excess. Occasional excess. The latter sometimes producing sudden death. Effects resulting from abstinence, and from a defective, poor, and innutritious, diet.

Influence of the quality of the food in the production of diseases.

Idiosyncrasies. Production of urticaria from particular kinds of food.

Vitiated rice as a source of disease. Spurred rye. Damaged wheat and other grains. Substances accidentally mixed with grains. Deleterious effects produced by certain kinds of vitiated animal food.

INEBRIATING AGENTS.

The phenomena to which they more immediately give rise.

The pathological conditions resulting from their habitual use.





