Outlines of general pathology / by George Freckleton.

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DEFINITION.

General Pathology treats of disease generally, its nature, origin, causes, symptoms, progress and terminations. Thus, in examining the symptoms it points out, the different circumstances under which each may occur, the different causes upon which it may depend, and prepares the way to the study of particular diseases, or Special Pathology. So, also, with respect to the causes predisposing to, exciting, or modifying disease, many interesting facts are thus collected and arranged. In short, it gives a compendium of various general observations and established data, the result of the experience of many, particularly calculated to facilitate the study of individual diseases, and to form correct observers, by showing, at one general view, all the most interesting particulars connected with disease, the various forms it may assume, the manner in which we should observe them, and the mode of reasoning which we should adopt in discriminating their differences.

CONTENTS.

- Specific . .
  - Contagious; poisonous effluvium, propagated by .
    - The Atmosphere.
    - Formites.
    - Actual contact.
    - Inoculation.
  - Non Contagious, propagated by
    - The atmosphere, as Marsh Miasms.
    - Not through the medium of the atmosphere.
      - Corosive .
      - Caustic .
      - Astringent
      - Acrid . .
      - Narcotic .
      - Narcotico-acrid . .
      - Septic .

      } Poisons.

- Occasional, or exciting
  - Predisposing, acting strongly.
  - Various occasional and even slight causes.

Mode of action of causes.
Idiosyncracy; diathesis; power of resisting disease.
Interval between application of cause and appearance of disease; various.

- Disease is
  - Connate, or Congenital
    - Not derived from parents.
    - Participating in disease of mother.
    - Constitutional liability derived from one or both parents to particular disease.
  - Acquired or accidental, divided according to its causes into . .
    - Sporadic.
    - Endemic.
    - Epidemic.
    - Contagious.
    - Idiopathic, or primary.
    - Symptomatic.

Mode of Attack; Precursory Symptoms,

- May consist of symptoms of
  - Diminution of powers and sensibility of the body and mind.
  - Greater apparent vigour.
  - Peculiar sensations.

Occurring at various periods; bearing no proportion to disease; declining or increasing.

Symptoms, distinction between and *Signs*; gradually change; not all of equal value; occur in rapid succession, or gradually in different stages of the disease.
Essential or characteristic; accessory.
Primary or local; secondary or general.

Sympathy, causes of; contiguous; remote.
Ancient division of symptoms; symptoms of disease; of cause; of symptoms; supervening; accidental symptoms.

SYMPTOMS OBSERVED IN THE GENERAL EXTERNAL APPEARANCE OF THE BODY.

1. The Attitude; during sleep; during action.

2. Size or volume
   - Increased .
     - By serous infiltration, general . . Anasarca.
     - By serous infiltration, partial . . Œdema.
     - Accumulation of air in cellular texture . . . . . Emphysema.
     - Accumulation of fat.
   - Diminished
     - Temporarily; cold fit of ague.
     - More permanently; emaciation.

3. Strength exhibited in the state of the muscles.

4. Skin
   - Colour of: Pale; pale and transparent; yellow; green; dirty; livid; blueish; cyanosis.
   - Eruptions appearing upon it . . . . . : Generally; or in patches of different colours; ecchymoses; tumours; abrasions.

SYMPTOMS OBSERVED IN THE EXTERNAL APPEARANCE OF PARTICULAR PARTS OF THE BODY.

1. Head—Position; size; tumours; eruptions; countenance; indicating stupor; turgescence, or congestion; contracted; facies Hippocratica; changes in its muscular motions.
   Colour—Redness; diffused or confined to particular parts.

   Eyes—Changes of, produced by disease in them; or in the brain; or sympathetic.
   Irritable; not affected even by strong impressions; convulsive motions, or strabismus; protruded; suffused conjunctiva; tinged of a yellow colour; whiter than natural.
   Expression—Power of contraction in pupils.
   Eyelids—Motions of; winking.

   Forehead—Wrinkled or contracted.

   Nostrils—Motion of; contracted; itching.

   Lips—Motion; appearance; colour.

   Hair—Falls off; changes in its colour.

   Neck—Dimensions; changes produced.

   Chest—Form; motions; difference between each side; succession; integuments.

2. Abdomen—
   - Temperature; Size
     - Increased
       - By bulk of integuments.
       - By accumulation of gas; meteorismus.
       - By accumulation of fæcal matters.
       - By accumulation of fluids.
       - By enlargement of contained viscera.
       - By presence of tumours.
     - Diminished

   Division of, into epigastric; umbilical; hypogastric; hypochondriac; iliac; lumbar regions; method of examining; pleximeter; auscultation.
   Form of, generally or partially altered; effect of change of position; genital organs.

3. The Limbs—External appearance; colour; volume; temperature. Motions; pains; uneasiness.
   Hands; fingers; nails.

SYMPTOMS OBSERVED IN MOTIVE POWERS.

Bones the passive, Muscles the active, agents of motion.

Bones—Fractured; luxated; deformed; softened, &c.

Muscular Power—Increased; diminished; lost; paralysis; hemiplegia; paraplegia; perverted; tremor; subsultus tendinum; convulsions, or spasms; general or partial; clonic or tonic; tetanus; cramp; catalepsy; chorea; contractions.
Weariness; prostration of strength; depression; debility.

3. The *Number* of contractions . .	Frequency . .	Frequent.
	Slowness . . .	Slow.
4. The *Regularity* of its action as to strength, quantity, frequency . .	Regularity . .	Regular.
	Irregularity . .	Irregular.
	Intermission .	Intermittent.
5. The *Strength* of the action of the *Arteries.*	Hardness . .	Hard.
	Softness . . .	Soft.
	Redoubling . .	Redoubling.
6. The *Irritability* of the vessels . .	Trembling . .	Tremulous.
	Quickness . .	Quick.
	Regularity . .	Regular.
	Slowness . .	Slow.
7. The *Medium Diameter* of the arteries .	Dilatation . .	Great.
	Contraction . .	Small.
8. The *Quantity* of *Blood* in the vessels .	Oppression . .	Oppressed.
	Smallness . .	Empty.
9. The *Contraction* of the capillaries .	Obstruction . .	Obstructed.
	Freedom . . .	Free.

CAPILLARY AND VENOUS SYSTEMS.

Capillary System—Secretion; exhalation; nutrition.
Its action increased, diminished; hemorrhage, passive, active.

Venous System—Capacity; exceeds that of arterial; varies in different persons; at different times; course of venous blood impeded by many causes, as by pressure; its velocity; *Plethora*—1. P. ad molem; 2. P. ad spatium; 3. P. ad volumen; 4. P. ad vires; degree of strength accompanying it.

The Blood—Its changes; separates naturally into two parts; serum; crassamentum; their proportions vary; buffy coat; shape of coagulum.

Animal Heat—Natural standard; increased; diminished; generally; partially; regard to be had to the influence upon the pulse; burning heat; shivering; horripilatio.

EXHALATIONS AND SECRETIONS.

Definition and distinction.

Cutaneous Exhalation, or Perspiration, varies, in health, in different persons; insensible transpiration; deficiency; dryness of skin; sweat, general or partial, favourable, unfavourable, colliquative.

Mucous Exhalations not easily described; changes in; coryza.

Serous Exhalations, diminished, increased; dropsy, effect of various causes; impediment to free circulation; debility; inflammation.

Sanguineous—Only one natural, and that to females, catamenia, varying in different individuals, and even in same; observations on. *Accidental*—Hemorrhages; causes; nature; active; passive; primary; symptomatic; vicarious.

Pus—Colour; smell; taste; specific gravity; composition; laudable, or true; Sanies; pus, how distinguished from mucus; muco purulent matter; exhaled on surface of membranes; diffused, or in one or more centres in organs; abscesses.

Tears; Saliva; Pancreatic Juice.

Bile—Hepatic secretion; increased; diminished; obstructed; jaundice.

OUTLINES OF PATHOLOGY.

GENERAL OBSERVATIONS.

ON DISEASE.

MAN is endowed with powers or functions requisite for the internal economy of his body, as also with others, necessary in consequence of its dependance and connexion with external and surrounding things. These exert a mutual influence upon each other, and the due performance of the one is requisite for the well-being of the other.

Three kinds of functions are described by medical writers: the *vital*, the *natural*, and the *animal*. The two first of these may be more properly classed under one head, and defined to consist in all those actions which are necessary to life, and which cannot be suspended without considerable injury to, or even the destruction of it. The vital functions include respiration and circulation; the natural, digestion, nutrition, excretion, and secretion. These latter, although necessary to life, may, however, be suspended, or impeded with much less danger than those especially named vital, and both are performed without any sense of uneasiness, and almost without consciousness. They are influenced by external circumstances, but are independent of the will.

The animal functions comprehend sense and voluntary motion. By these man is connected with the objects around him; they admit of suspension, and are dependant upon the will.

The correct and proper exercise of these several functions constitutes health. We cannot, however, say that every deviation from this state can be considered disease. The structure of the body is so complex, its actions and motions so various, that if every slight alteration constituted disease, it would be incorrect to say that perfect health could ever be enjoyed. A certain latitude must therefore be allowed, and hence it is difficult to give a correct abstract definition of disease. Of its real and essential nature, even in individual cases, we are often ignorant, and can only judge of it by its phenomena; and although attempts have been made in every age, and by every sect in medicine, to give a general definition, yet this has usually been hypothetical and partaking of the then prevailing prejudices or opinions.

But the difficulties attendant upon the arrangement of diseases in a systematic form are considerable. In the first place, a correct definition of each is requisite, and this should include a brief history of the disease, as regards its progress and all those essential symptoms which enable us to discriminate this particular disease from others which resemble it, or might be confounded with it. At the same time, it should be free from all theory, and to great perspicuity should unite brevity. Dr. Cullen remarks, "that the fault of many able physicians has been to give a too detailed and minute history of diseases. They have not only given the symptoms which are always present and inseparable from the disease, but they have enumerated all which by any chance have been observed to accompany the disease, and have neglected to point out, in their anxiety to give a full history of the disease, those symptoms which are essential to it, and which distinguish it from others." In some diseases, perhaps, we can scarcely avoid including in our definition some of the symptoms which occur in the varieties. Diseases, after being correctly defined, may be arranged in different classes, orders, and genera, either according as they resemble each other in their external characters, or in the similarity of their causes, or in their pathological characters, or according to the textures which they occupy. In this manner a system of nosology is formed; a classification, in fact, of diseases, according to their affinities, each disease being defined in as short and correct a manner as possible, so that we are enabled by this definition to recognize, and readily distinguish it from others.

The number of diseases to which man is liable, is very great, and this number would be considerably multiplied if we should consider all the varieties of each as so many distinct diseases. Some are readily recognised by their external characters, and some by the specific causes exciting them; whereas others, which do not exhibit any material change in the organs, or only a variety of lesions differing in different cases, and which appear to arise from no single specific cause, cannot be referred to any particular genus, but must be estimated only by their symptoms. In every disease, too, great variety is observed; each has not constantly the same symptoms, the same progress, the same duration or tendency to a favourable or unfavourable termination. The small-pox exhibits a peculiar eruption, but how various are its general symptoms; at one time it may be a mild disease, the pustules few in number and distinct, and the general disturbance but slight; while, in another member of the same family and from the same contagion, the disease may assume the most formidable aspect, the body be one almost uniform mass of pustules, and the accompanying constitutional disturbance alarmingly violent. We must be acquainted, then, with each variety, and with the numerous intermediate forms. Among the different modifications of diseases, a distinction has been made between the most important and those which are less so; the former of these are called *species*, and the latter *varieties*, though we have no fixed

which must have originated in some cause; and hence the causes capable of inducing disease have always deservedly engaged attention. They are very numerous, and their influence is in constant operation. They may exist in the body itself, or may be external to it, and even those *agents*, which are essential to life, may by error or abuse become fruitful sources of disease.

The *causes* of disease have been divided into the *proximate* and *remote*, and these latter into the *predisposing* and *occasional* causes.

The *proximate* cause has been defined, "illa quæ presens morbum facit, sublata tollit, mutata mutat;" in short, it is the disease itself, and must vary, of course, in every disease, and even in the same disease during its progress. For as one disease is made up of different stages or changes in its symptoms, these, in most instances, are the effect of some change in the cause upon which the disease essentially depends, or in the succession of morbid actions which constitutes the real nature of the disease. Gaubius observes, "In as many different parts, therefore, as that which we call disease consists, so many different conditions or active powers will be the causes of it, every one of which makes some part of the disease, united the whole." How can we, in fact, apply the term cause to that which must be considered an effect, for the proximate cause is nothing more than the effect produced by the action of those causes which have excited the disease. The application of the proximate cause to the explanation of the symptoms, is called by medical writers, the *Ratio Symptomatum*.

The remote causes comprehend a variety of agents, varying much in their nature and in their effects. Some act generally, and produce in different, or even in the same individual at different times, dissimilar diseases. Thus one may be exposed to the influence of cold, and have fever produced; while another, or even the same person at another time, may have pleurisy, or sore throat, arising from exposure to the same cause. Others of these causes always produce, in those who are exposed to their action, the same disease, and these may be termed *specific*. Again, it is remarked, that a set of causes may go on gradually operating, and disposing the system to be excited to disease upon the application of any of those causes, which may assail the body from time to time, and these are named *predisposing* causes. So that we have specific, predisposing, and occasional causes.

The *specific* causes admit of being divided into those which produce diseases capable of being propagated by *contagion*, and into those which produce diseases which are *not contagious*. The former of these give origin to a particular series of symptoms, which may be transmitted to any individual, or series of individuals, who come in contact with the person affected. And these may again be divided into those which require *absolute contact* for their diffusion, and those which may be transmitted through the medium of the *atmosphere*. This also applies even to those specific causes which are unconnected with contagion. For we know that many of these

act through the medium of the atmosphere, and produce diseases which are not contagious,—as a variety of effluvia or emanations, and of irrespirable gases, which prove destructive of life by their action on the respiratory organs. The most remarkable instance is the marshy miasm, or vapours arising from marshes, which are capable of producing fevers, marked by the singular feature of regular intermissions between the periods of the paroxysms, and hence called intermittent fevers. It has been attempted to disprove the existence of any such specific cause, and argued that any one exposed to its influence may equally suffer from a continued affection, or one characterised by no such intermissions, and which may prove fatal in a short space of time. The specific cause of intermittents would, indeed, appear not to arise solely from the effluvia of marshes, but is said to proceed also from decaying animal and vegetable matter, from great heat accompanied by moisture; and the observations of M. Andral tend to prove that intermittents may originate, in similar causes, with continued fevers. The opinions of most writers are, however, opposed to this, and a variety of facts are adduced to show that the presence of decaying vegetable or animal matter is necessary to the formation of marsh miasm.*

The operation of the different poisons may be taken as an instance where causes act specifically in the production of a non-contagious affection, and not through the medium of the air. Thus Orfila arranges them under specific heads, according to their action. As *Corrosive*, or those which produce in the intestinal canal the same effects as caustic on the skin, more serious of course in their consequences, as the parts acted upon are of greater importance in the animal economy,—as arsenical, mercurial, and antimonial preparations, concentrated acids, &c. *Astringent*, which produce a diminution in the intestines, a narrowing or obliteration of their canal, or, at all events, obstinate constipation,—as lead, wines impregnated with lead, or food cooked in leaden vessels. The *Acrid* act nearly in a similar manner with the corrosive, except that, although they inflame the textures, they do not directly occasion eschar,—as chlorine, the colchicum autumnale, colocynth, elaterium, &c. The *Narcotic* act little upon the organs with which they are in contact, their operation being upon the brain, whose functions they disturb or suspend,—as opium, hyoscyamus, prussic acid, nitrogen gas, &c. Another class, which produces the effects both of the narcotic and acrid, he terms the *Narcotico-acrid*, as tobacco, stramonium, nux vomica, cocculus indicus, &c.; while he denominates those *Septic* which bring on gangrene in different parts, or which induce fevers of a low character which prove generally fatal,—as sulphuretted hydrogen gas, putrefied substances, the sting or bite of bees, wasps, vipers, venomous snakes, &c.

* M. Magendie states that a quantity of this deleterious atmosphere, or miasmatous exhalation, has been collected, and in a few hours, by the assistance of cold and other agents, has been condensed, and a considerable residuum of animal or vegetable matter obtained, which had a tendency to run into putrefaction with the greatest rapidity.

low or high temperature, or other causes, and yet escape disease, although, more generally, he acquires a liability to be affected by those diseases to which this mode of life gives a predisposition. It may also be remarked that the power of habit is sometimes very remarkably shown in disease. Thus we find, that persons who have had repeated recourse to bleeding, at length become so habituated to the necessity of it, that they require its repetition at the accustomed time. So hemorrhages by their recurrence, at length, produce a peculiar predisposition to them, which appears, in many cases to originate, or at least to be maintained, by habit. We find women acquire a habit of having the catamenia at irregular periods, at longer or shorter intervals, with or without any alteration in quantity or quality. Some women acquire a habit of miscarrying. Dr. Heberden relates a case where a lady miscarried thirty-five times. Some again will miscarry only boys, and carry on the girls to the full period without inconvenience, others again will miscarry girls only.

The different *pursuits* in which men are engaged, their trades and their professions, may operate as predisposing causes. The senator eagerly engaged in frequent and energetic debate, is rendered liable to affections of the chest and larynx, while many sedentary occupations bring on affections of the digestive organs, or a train of disturbances in the nervous system. The different *habitations* in which they live may also be mentioned; thus, the densely crowded population of a poor district, confined almost entirely to hot and ill-ventilated rooms acquires predispositions to diseases, which are almost unknown in the well-ventilated houses of the richer class. To this, too, may be added the difference in *clothing* and in *diet*, both of which, even in themselves, are found sufficient to predispose to disease. Thus we find that exposure of different parts of the body to cold, from defect of clothing or from fashion, will favour its action upon them. And, indeed, some varieties of dress, or rather improprieties committed under the sanction of fashion, may even excite disease, as tight-laced corsets, which prevent the intercostal muscles from being properly called into action, and cause the breathing to be carried on by means of the diaphragm, thus impeding respiration, and preventing the requisite changes in the circulating fluid. Proper attention should at all times be paid to a due degree of warmth of clothing, especially in the two extremes of life, youth and age; but the extremes should always be avoided; too little clothing being apt to favour the occurrence of pulmonary diseases, rheumatism, bowel complaints, and, in females, of suppressed and difficult menstruation, while too warm clothing renders the body more liable to suffer from impressions of cold, and tends to relax and debilitate the system, especially if, as is generally the case, the additional error be committed of living in over-heated rooms.

The *diet* which man is capable of living upon is various, and indeed, it seems requisite that he should not confine himself to the

of the eyes, of the chest, and of the peritonæum, at the same time, and without the application of causes otherwise capable of exciting each, we should say that he had an inflammatory diathesis, and this diathesis would give an inflammatory character to any affections which might arise in him, from causes which in others would be attended by no such consequence.

A particular power of resisting disease appears also occasionally to be possessed by the body. Thus some may expose themselves to contagion with impunity,—and this exemption from disease seems sometimes to be derived from habit, from mode of life, or from other obvious circumstances. In this way it has been remarked that in some of the plagues, as at Paris and London, the tanners seemed more readily to escape. In the plague at London, all those who were engaged in ship-building, and who lived chiefly in an atmosphere abounding in the fumes arising from pitch, escaped. In the hot climates, when yellow fever prevails, the natives, accustomed, as it were, to the disease, escape best. And, on the same account, the Turks look upon the invasion of plague with less fear, and are observed to suffer less from exposure to its contagion; and thus we may account, perhaps, for the impunity with which nurses generally follow their duties in fever hospitals. From some diseases people acquire an exemption by their age, sex, or constitution.

It is always well to ascertain, if possible, the causes producing any disease; but it must be evident that, in many instances, this can be of little importance in a practical point of view, since even when known, their mode of operation in its production is often uncertain and sometimes inexplicable.

The *Interval* which may elapse between the application of the cause and the actual appearance of the disease, varies in different cases. In some it may follow soon after the application of the causes, in others it may not come on for several days, or until after a much longer period. Thus, inflammation follows almost immediately the application of any irritant; hydrophobia may not come on until several weeks or months after the person has been bitten. The interval which elapses between the period of exposure to contagion and the appearance of the disease, is also various.

DIVISION OF DISEASES ACCORDING TO THEIR CAUSES.

Diseases may be divided into two classes, the *connate* or *acquired*. Connate or congenital diseases are those which the infant labours under when born, diseases which it may be said to bring with it into the world. It does not follow that these are hereditary, although the congenital may be an hereditary disease. But many of them are such as the parents have not had, and, generally speaking, hereditary diseases show themselves at a later period. Thus hydrocephalus may be a congenital disease, the child may be born with the disease more or less strongly marked; syphilis may be congenital and also hereditary, since it has been derived by the infant from one or both of its parents.

are produced. In convulsive diseases, a variety of irregular motions occur at intervals, or one regular and permanent contraction is observed; and in tetanus, the varieties are named as the body is bent like a bow, backwards or forwards. In many instances we do not remark any peculiarity in the position which patients assume when in bed, but in others we observe them placed in one particular attitude, which may be considered as peculiar to their disease. In great debility the patient lies on his back, with his limbs extended, and a degree of flaccidity and of inertion is observed in all parts of the body. In some cases he lies in this position to avoid the uneasiness or pain which he may feel on assuming any other, as in rheumatic affections; while at other times he does so with his legs drawn up so as to take off the action and pressure of the abdominal muscles, as in inflammation of the peritonæum or intestines. Sometimes a patient lies upon his belly, or assumes some other position which may enable him to make pressure upon the abdomen, as in cases of colic. In other cases, he will be found always lying on one side, and never changing his position, or complaining of great pain or uneasiness whenever he makes the attempt. Thus when effusion has taken place into one side of the chest, the patient lies most easily on that side. In pleurisy, too, Laennec remarks, that the patient will generally be found lying on the back, or on the side affected with pain, and cannot remain any time on the sound side without feeling a sense of suffocation; it is not uncommon however, he adds, to see the contrary, and many lie only on the sound side.

In inflammation of the liver the decubitus is on the right side, it is almost impossible on the back, and generally completely so on the left side. In some affections of the chest, as in hydrothorax, when there is effusion in both sides of the chest, the patient is unable to lie down,—he sits up in his bed, or supported by pillows; and this is also the case in some diseases of the heart. Where effusion has taken place in the pericardium, we often find the patient not only sitting up, but inclining as much forward as he can, so as to be bent almost double; but this symptom is sometimes absent. In cases accompanied by difficult respiration, especially where aneurism of the aorta, or any tumour presses upon the trachea, the patient may assume some singular position which is rendered easy, and therefore habitual, in consequence, perhaps, of the tumour thus producing less pressure, and so rendering the passage of the air more free. Occasionally we find those affected with laborious respiration sitting up or very much raised in bed, but with their heads thrown as much backwards as possible. Patients are sometimes constantly changing their position and attitude; they appear in a state of great agitation, tossing their limbs about, uneasy in every position almost as soon as they have assumed it, and placing themselves in attitudes which appear even singular and uneasy, as in some affections of the heart.

The size or volume of the body may be increased or diminished

ent individuals, in some degree indicating the disposition, and probably deriving its character from the prevalence of some particular feeling or passion, are familiar to us. In disease, also, the face exhibits a variety of traits difficult to explain, but often easily recognised by an experienced observer; so that in many instances it may be said that a peculiar appearance of the countenance so generally accompanies certain kinds of disease, as to form a pretty faithful indication of their presence. Sometimes it is indicative of stupor, when it is marked by a general want of expression in all the features, and particularly in the eyes; the patient returns with difficulty an answer to any questions, he seems unconscious of anything which passes around him, and indifferent to his situation; yet at the same time unoccupied with any peculiar train of thought. Sometimes it is characterized by the turgescence and redness of the different parts of the face; they seem distended, the eyes are prominent, the conjunctivæ are injected, the eyelids, the lips and cheeks, are distended, red and even violet-coloured. This is seen in cases of turgescence or congestion in the head. The opposite to this is marked by diminution and contraction of the features, which are pale and even livid and contracted, while the face appears lengthened. In this, however, there is only an apparent diminution, and it is often seen at the commencement of acute diseases, particularly inflammation of the peritoneum, and indicating some serious affection. It differs then from that produced by absolute emaciation, the most remarkable degree of which is the Facies Hippocratica, which derives its name from the great father of medicine, who has accurately described it. It is seen at the close of some diseases, as phthisis, &c., and may be looked upon as an almost certain indication of a fatal termination. The nose is pinched, sharp and cold, the nostrils contracted, the eyes sunk, the temples hollow, the skin of the forehead dry and wrinkled, the cheek-bones prominent, the cheeks sunk, the lips pale or livid, thin, hanging down, relaxed, and showing the dry teeth; the chin, and indeed the whole face, appears lengthened, the ears are cold and drawn back.

But the face may exhibit a much greater variety of appearances than those already enumerated. Thus, in delirium, it varies very much; and in other diseases it may undergo many changes in its motions, its colour, size, and in the individual features.

The muscles of the face may be almost in constant action, and this affection may extend to all, or be confined only to particular ones. There may be various degrees of tremor, or convulsive motions; or there may be perfect immobility in all the muscles, or only a partial paralysis of some particular one, or of one set, indicating an affection of the brain itself, or only of certain nerves supplying the affected muscles. In cases of great debility, an evident slowness in their motions may be observed, as after great hemorrhages, and in some of these cases are seen slight convulsive twitchings or tremors.

The size of the face becomes occasionally enlarged; thus it appears swelled and turgid previous to the appearance of some eruptive diseases, or in consequence of determination of blood to the head. But, generally, any increase or diminution of size is not confined to the face, though it forms a good index to the state of the other parts of the body, since these are often remarkable in the face before they are observed in other parts.

The changes in its colour may also be common to it with the rest of the body, or confined to itself. Its redness is usually a sign of general or local plethora, and may be more or less intense, and more or less constant; sometimes disappearing at intervals, and becoming most remarkable during any accession or paroxysm, extending over the whole of the face, or confined only to particular parts, as to a circumscribed red patch upon the cheeks in hectic fever. Whenever flushing of the face is observed in this latter form, during the progress of a general disease, as fever, we may suspect that the chest is more or less affected. If it is confined to a single cheek, we must ascertain the manner in which the patient lies in bed, for the cheek which has rested on the pillow is always redder than the other. Any changes in the colour of the skin are generally most remarkable, and continue longer upon the face than upon the other parts of the body, as the yellowness of jaundice, or the pallor of debility.

The appearance of the *eyes* is important, and the changes which they undergo may either be the consequence of some affection confined to themselves, or existing in the brain, or sympathetic with some diseased organs distantly situated. At the commencement of inflammatory affections of the brain and its membranes, they are very irritable and intolerant of light, but as the disease advances, and occasionally very early in the disease, the pupils will not contract, or only very slightly, even upon the application of a very strong light; for, in cases of effusion or congestion, the eyes cease to be affected by visual objects. Sometimes a sort of convulsive motion of the eyes, or strabismus, is observed, or they are fixed, and turned up, or down, or to one side, so as to conceal the greater part of the pupils. This is not always symptomatic of organic disturbance in the brain, since it may occur in hysteria or in infantile complaints, as disordered bowels, or flatulence, or from such causes as would scarcely permit the supposition that it could depend upon any, even a temporary compression of the brain. When any great determination of blood, or much congestion takes place in the head, as in some cases of apoplexy, in asphyxia, or strangulation, and in some affections of the respiratory organs, the eyes appear protruded and larger than natural. This is in a great measure only apparent, since enlargement would appear only to take place in some inflammations of the eye itself, and in hydrophthalmia, &c. In inflammatory affections, the eyes are suffused, and numerous small blood-vessels can be detected in the conjunctivæ, giving them a redness in places where no such appearance could be detected in

tions of the temporal arteries are commonly increased in cases of determination of blood to the head; and Rostan remarks that there is often great contraction of the temporal muscles accompanying cerebral congestion. These, as well as the muscles of the face, are also sometimes firmly contracted in certain convulsive diseases.

We can often judge, by observing the *nostrils*, of the degree of ease or labour with which a patient breathes; being raised and distended, and their movements rapidly performed, in cases where the respiration is very difficult, so that occasionally their motion appears almost convulsive. Where there is great debility, the nostrils are often pinched and contracted, so as to give the appearance of great thinness to the nose; and when any irritation exists in the intestines, as from the presence of acrid matters or worms, and sometimes in diarrhœa, they are affected with a sensation of itching; but this may also arise from local causes, as in epistaxis, before the flow of blood from the nose.

The *lips* in diseases accompanied by great debility, especially in fevers, hang down; and in these, as well as in some nervous affections, they are tremulous. This tremulous motion often precedes vomiting. In painful diseases they are generally firmly pressed together and contracted. The lips are sometimes pushed quickly forwards, and as quickly separated, when the patient makes an expiration, which Rostan compares to the action of smoking a pipe, or puffing, and which he considers a common sign of a strong compression on the brain. Sometimes in fever the patient makes a peculiar noise with his lips and tongue, resembling that which is commonly termed "smacking the lips;" and this my own experience induces me to consider a dangerous symptom. In hemiplegia the lips are said to be drawn to that side which is not affected, the paralysed muscles offering no resistance to those of the opposite side, while in convulsions they are drawn to the side most affected. The lips are sometimes swollen, especially when any eruptions appear upon them; in scrofula the swelling is generally considerable, but confined to the upper lip; this may also be remarked occasionally in cases of intestinal irritation.

Their colour is also important. In inflammatory diseases it is generally bright red, and where the inflammation affects the intestinal canal they are red, shining, and dry. In cases of debility, after great hemorrhages, or excessive discharges in chlorosis and in dropsy, they are pale; while in all cases where the free circulation of the blood is impeded, as in affections of the heart, of the large vessels, or of the respiratory organs, they become blueish, livid, or dark coloured. Sometimes they are cracked or chapped, and occasionally exhibit deep fissures; while at other times, as in low fever, they are more or less covered with different coats or crusts of a grayish, brownish, or black colour, similar to those observed on the tongue.

The *hair* frequently falls off after acute diseases, and it is stated occasionally to have undergone remarkable changes in colour, when

of more than an inch may often be found to exist between its breadth and that of the opposite side. Its length is also equally diminished, the ribs are brought nearer to each other, the shoulder is more depressed, the muscles, especially the pectoralis major, are diminished to half the size in comparison with those of the opposite side. The difference of the two sides is, indeed, so remarkable, that at first sight, it would appear to be much more than it is in reality found to be on actual measurement. The spinal column, in general, continues straight, although from the habit which the patient acquires of leaning to that side it may acquire a slight inclination. These appearances indicate that, at some period, a considerable effusion has taken place, and in all probability produced an enlargement of this very side of the chest; but that, in process of time, the lung having been compressed, could not recover its former volume, and the walls of the chest have diminished in approaching the contained organ. It has been proposed, in cases where it is suspected that an effusion of fluid and air exist at the same time in the chest, to resort to the old method of succussion as described by Hippocrates, shaking, in fact, the patient, and listening for a noise similar to what is heard in agitating a half filled bottle. This experiment is at least useless, and may prove very dangerous.

The integuments of the chest may be distended in anasarca, or emphysema. In some persons, a natural difference exists between the dimensions of the sides of the chest, independent of any disease. In those who have suffered much from difficult respiration, the shoulders are generally observed to be elevated and brought forwards.

Sometimes when a large aneurism exists, a tumour may be observed on the part of the chest corresponding to its situation. In one case which I attended, there was a large pulsating tumour at the lower portion of the left scapula, in some degree occupying its place, from which it seemed to have been pushed aside, the ribs appeared to have been absorbed, and these changes were produced by aneurism of the aorta, but not having been favoured with an opportunity of being present at the inspection I cannot enter into any detail of the appearances.

The *abdomen* varies in size in different individuals even in health, and in disease it may exhibit the same alterations, in size, colour, and temperature, as the other parts of the body, and arising from the same causes. When we find great heat of its integuments confined to that region, or at least bearing no proportion to the general temperature of the body, we may suspect the presence of some irritation in the abdominal viscera, a symptom often observed in young children.

Increase of size in the abdomen when not dependant upon alteration in the bulk of its integuments, generally arises from some accumulation of gas or fœcal matter in the intestines, from the presence of fluids, of from some enlargement in one or more of the contained viscera.

observed in them (ungues aduncati), they become elevated in the centre, and appear as it were to enclose the extremity of the finger. This has been attributed to diminution in the soft parts by absorption, but the fingers often look broader than natural at their extremities.

SYMPTOMS OBSERVED IN THE MOTIVE POWERS.

The organs concerned in the production of muscular motion may be divided into those which are passive, and those which are active. The former of these form the solid frame work and support of the body, and by their solidity afford the other, or flexible and contractile organs, points of insertion and support for the performance of those actions, by which they effect the different motions dependant upon the will.

The *bones*, or passive agents, are liable to injuries peculiar to themselves; thus they may be fractured or luxated, by either of which accidents the action of the muscles would be prevented from producing their regular motions. They may become deformed, softened, or curved in different ways, their cartilages may suffer disease and render motion painful, or the joints may be anchylosed, when all motion is prevented, not only such as the will could otherwise have effected, but even any attempt to produce it in the part will be fruitless. But the *muscles*, the active agents in the production of motion, furnish us with a variety of phenomena of great interest and value. Any great increase in the muscular force is rarely seen except in maniacal cases; it may, indeed, occur in a less degree in some diseases which are termed nervous, as hysteria. The most common changes, however, consist either in the decrease, in the absolute loss, or in the perversion of the muscular power.

The greatest number of acute diseases, as well as diseases of long standing, and excesses of all kinds, appear to diminish it; and although this may at first only amount to a degree of weariness and consequent desire to avoid any muscular exertion, it may go on to such a degree of weakness, as will incapacitate the patient from performing any muscular exertion. He lies motionless, and if any of his limbs be raised, they fall again without any effort on his part. He neither moves nor turns in bed, nor is he able to assist himself even in the prehension of food. Every degree from simple lassitude to absolute prostration of strength, may be observed in different cases. In some the forces are actually diminished or exhausted, as, for instance, after long and serious diseases, after great evacuations, as large hemorrhages, or from deficiency of nourishment, while in others they are merely depressed by some cause, which if we can succeed in removing, we at the same time remove altogether, or at least materially alleviate, this depression. When real *debility* exists, it will remain even when the cause which has tended to induce it, is removed, and will only be relieved by such means as are suited to produce greater strength and energy in the body.

when the muscles of the tongue are alone affected, occasionally it may be a spasmodic affection; thus hysterical females are sometimes unable to speak during their paroxysms. Whenever it is accompanied by signs of great debility, it forms an unfavourable symptom. Alcoholic and narcotic preparations sometimes produce it: thus Sauvages mentions a case where, after drinking wine in which the seeds of stramonium had been infused, the individuals did not recover the power of speech for two days. The berries of atropa belladonna and the root of hyoscyamus niger will produce a similar effect.

Laennec, in his investigations into the diseases of the chest, has extended *auscultation* to the examination of the voice, as furnishing certain indications, which may be ascertained either without or with the assistance of the stethoscope. If the hand is applied to the chest of a healthy person, when he speaks or sings, a degree of tremor may be felt over its whole extent. And if the ear be applied under similar circumstances, but particularly if it be assisted by the stethoscope, a confused sound is heard, which varies in intensity in different parts of the chest, but is most evident in those which are the least covered by fleshy integuments. The parts, therefore, in which it can be heard most distinctly are, the axillæ, the anterior and superior part of the chest, near the angle formed by the union of the sternum and clavicle, and on the back, between the internal margin of the scapula and the vertebral column. This sound varies in different individuals according to the tone of their voices; thus when this is grave, it is stronger, but dull, confused, and almost the same in all points of the chest, whereas it is clear and very distinct in those who have a sharp-toned voice, as in females and children. A trembling and agitated voice is only feebly heard, and in aphony the sound is altogether wanting.

The chief changes produced in this sound by disease, are described by Laennec under the names of *pectoriloquism* and *ægophonism*.

Pectoriloquism consists in the voice appearing to come sufficiently distinct from the point upon which the stethoscope is applied, and to pass through the centre of the tube directly to the ear. A perfect idea may be formed of this by applying the instrument to the trachea of a healthy person while he speaks, sings, or coughs, when the voice will appear to come strongly through the tube, and prevent the observer from hearing that which proceeds from the mouth, with the other ear. This effect may extend all along the sides of the neck, and even occasionally be heard in the nucha, so that as the base of the neck is approached, this laryngeal or tracheal sound may be heard, and mistaken for a sign of disease at the summit of the lungs. *Pectoriloquism* is said to be *perfect* when the voice appears to come clearly and well articulated, and to pass through the cylinder and arrive at the ear of the observer either with its natural or a stronger tone; while it is *imperfect* when the voice sounds forcibly under the cylinder, and appears to approach

in some, be attended by little danger, while in others, it may form a very formidable symptom, and in all it deserves our attention. For, although at first slight, and produced by slight causes, it may go on increasing to an alarming degree, especially in irritable persons, and whenever we meet with it in those who cannot be considered liable to be thus readily affected, we have every reason to fear some serious cause for its occurrence.

EXTERNAL SENSES.

The disturbances which take place in the action of the external senses may depend upon an altered state of the organs themselves, or may be symptomatic of an affection of the brain, or of some distant organ.

Vision may be affected in a variety of ways; the chief of these may, however, be classed under increased or diminished sensibility of the eyes, or complete abolition or depravation of the powers of sight.

The eyes may become very sensible, so as not to bear even a very feeble light without great inconvenience or pain; and this intolerance of light may be, in some instances, so great that the patient cannot be induced to open them except in a situation from which the light is excluded, as happens in particular inflammations of the eyes, and in inflammation of the brain and its membranes. In other cases their sensibility is much weakened, and occasionally quite lost; this may happen in the course of affections which have induced great debility, or in various nervous affections, and sometimes as symptomatic of derangement in the primæ viæ, and yielding readily to appropriate remedies. Of course every gradation, from slight imperfection to complete loss of sight, may be produced by disease in the several parts of the eye. The vision may also suffer many perversions, so that objects may appear under forms and colours which they do not possess. Patients sometimes complain that they see flashes of light, or small dark spots, or mists, or films floating before their eyes, and occasionally that all objects appear double. In vertigo, every object seems to turn round or be unsteady, and the patient appears to himself to be unsteady. It has been divided into simple vertigo, where there is only present this sensation, and into the vertigo caligenosa, in which the patient not only conceives that every thing turns round, but his sight becomes obscured as if by a cloud, and he falls down, generally suffering at the same time more or less palpitation of the heart. Vertigo may depend on many causes, and form a symptom of more or less danger, in proportion to that on which it depends. It frequently attends upon debility, upon indigestion, upon various nervous affections, while in other cases it is evidently connected with disease in the brain, or with plethora.

The *hearing* may undergo similar changes, so that it may

said a patient so affected to him, "seemed to be earth that I was eating." If the lingual nerve is divided in an animal, the tongue continues to move, but it has lost the property of being sensible to savours; and, in this case, the palate, the gums, and the interior surface of the cheeks, preserve their powers of taste. Patients occasionally complain of peculiar sensations in the tongue not easily accounted for, since they are not relieved by attention to the state of the stomach, or by the remedies which we should consider applicable to them. Thus, in some, it is that of burning heat, as if the tongue had been dusted with cayenne pepper; in others, it is a strong acidity, &c.

The *touch*, taken in its limited sense, makes us acquainted with many of the physical characters of bodies, as their temperature, their hardness or softness, their roughness or smoothness, &c. This feeling is diffused over the whole of the body, but its principal organ is the hand, upon which have been bestowed elaborate descriptions and eulogiums, particularly by Galen, and lately by Sir C. Bell. And to this faculty as possessed by it, has been peculiarly applied the term *touch*, while that which is diffused generally over the body has been named *tact*.

"Tact," says Magendie, "is, with some few exceptions, generally diffused through all the organs, and particularly over the cutaneous and mucous surfaces. It exists in all animals, while touch is evidently exerted only by parts which are intended particularly for this use; it does not exist in all animals, and it is nothing else than tact united to muscular contractions, directed by the will."

The variations which this tact may undergo are such as have already been described under general sensibility, and thus it may be increased, diminished, or perverted. It also admits of being considerably influenced by habit.

INTERNAL SENSES.

The faculties of the mind are liable to suffer disturbances, and to undergo a train of serious and afflicting aberrations, some of which occur during the progress of other diseases, and must be considered as merely symptomatic, while others are idiopathic, but arise from causes difficult of explanation. We rarely find the memory, the imagination, or the judgment exercised with greater facility or clearness during disease; although it is remarked by some authors, that patients will sometimes think, act, and speak with greater clearness and more judgment, and display a more abundant flow of ideas than they were wont to do in health, and that in some cases, even just before death, a considerable elevation of the faculties of the mind has been observed. But although strong intellect may be possessed by persons of a weak and delicate frame of body, yet in almost all cases of disease the mental faculties either remain unim-

paired, or suffer some perversion, or become weakened, or completely lost. In some only one faculty may be impaired, in others all are equally disturbed at the same time. In those who labour under *mental derangement* such great differences are observed, and so obscure are the causes upon which these depend, that as yet we have no correct basis upon which we can establish a strict division between the varieties, or even a correct definition of an insane mind. "Where is he," says Esquirol, "who can flatter himself that he has observed and can describe all the symptoms of mania, even in a single individual?" The extent of the aberration is greater or less, as it is extended to all, or confined only to particular objects, or even a single one, or as the faculties of the mind only wander, or as they are completely lost; and any of these states may be an hereditary or accidental and acquired disease. But how difficult is it often found to decide upon that degree of eccentricity which may be considered consistent with sanity, or to determine accurately the limit between mere weakness or want of energy of mind and true imbecility, between a fool and an idiot. A man solely occupied in the pursuit of some laudable object, may so concentrate all the faculties of his mind on it, as to act in other respects in a manner so singular as to render him liable to a suspicion of his sanity, and this suspicion would be justly entertained if the object pursued were worthless and irrational.

A degree of mental aberration occurs during the progress of some diseases which has received the name of *delirium*, and which may exhibit as great variety in its symptoms as the cases of more decided mental diseases. Of this two principal varieties are described, the delirium *mite* and delirium *ferox*.

In the former of these it would scarcely appear that any delirium was present, except upon careful examination. The patient may lie still, but mutters to himself or preserves an obstinate silence, or he may be engaged in some constant action, as attempting to rise from his bed, throwing his coverings off, or in conversing with some imaginary person, or gazing at some fancied object. In some cases only a slight change in the patient's manner will be remarked; thus he may speak more quickly, or in a tone different from what is natural to him, or he may appear anxious to evade being questioned, or very unwilling to adopt any plan or remedies proposed to him. In the delirium ferox the patient is in a state of great excitement, and is with difficulty restrained from committing violent actions. He starts from his bed, resists restraint, and is often engaged in shouting or singing, or menacing those around him. At other times he weeps bitterly, tries to injure himself, and in short, exhibits a rapid succession of extravagant actions and ideas, accompanied by wildness in his countenance, and generally flushing of the face.

Delirium may be constant, or come on only at intervals; thus sometimes the patient is free from it in the day, and only affected during the night. Its character varies much: it may be sombre

greater or less importance, according to the state in which they occur. They are often observed at the close of serious affections of the mucous membrane of the stomach and intestines, and in tubercular phthisis, and may be considered the sign of approaching death.

The size of the tongue may vary, but certainly not in proportion to that of other parts of the body, although in inflammatory affections, of itself and the neighbouring parts, it may become so large as to threaten suffocation.

The alterations which take place in the facility with which it is able to execute its *motions* are interesting. Thus they may be tremulous, and executed with difficulty, as in cases of great debility, or the power of moving it, or, at least, protruding it, may be much impaired, or entirely lost; and in cases of hemiplegia, it is drawn to the side opposite to that affected.

The *deglutition* may be performed in a manner different from what is natural, in consequence of diseases in the organs concerned in this function; as also sympathetically, in consequence of the relations which these have with other parts. In all cases where we find deglutition affected, the parts concerned in its execution should be carefully examined. It is not often accelerated, although this is sometimes the case in nervous and convulsive affections, when it appears to take place by a hasty and convulsive movement. It is more generally impeded, or rendered difficult and painful, as in inflammatory affections of the tongue, fauces, and tonsils, or of the larynx or pharynx, or where any impediment exists to the free passage of the food through the pharynx and œsophagus, as from abscess or tumour pressing on these parts, or where these parts are affected with paralysis or spasm. In some cases, solid substances can be swallowed most easily; in others, liquids can alone be taken without great difficulty, and this has been considered a sign by which we may, in some measure, decide whether the impediment is produced by inflammation or paralysis. For it is conceived, that solid substances produce more compression and uneasiness in inflammation than liquids, whereas, in paralysis, when the alimentary bolus possesses some bulk and resistance, it requires a less contraction and effort, on the part of the muscles of deglutition, for its propulsion than liquids. This, however, cannot be much depended upon; and since liquids require the greater effort, they often prove very painful to these parts when inflamed.

In cases of great debility, deglutition often becomes distressing to the patient; and as disease approaches to a fatal termination, generally, this difficulty increases, until the patient loses the power altogether. So that if we attempt, by putting any fluid in his mouth, to induce him to swallow, we run the risk of producing suffocation (unless he has remaining strength enough to expel it by coughing), the fluid passing into the larynx, in consequence of the epiglottis having, in a great measure, lost its protecting power.

Deglutition may be altered in consequence of a prolongation of

and walls of the chest indicate a diminution of this necessity, varying according to age, the states of sleep or waking, of action or repose, of a quiet or agitated mind. Collin calls that respiration complete in which both lungs are equally engaged, and which is characterised by equality in the force and extent of the movements of the chest. He terms it incomplete when one side remains partly or wholly fixed, and moves much less than the opposite side; and he considers this, more especially in young children, a valuable symptom, often leading us to suspect disease, as inflammation of the pleura or lungs, in the side on which it is observed. It is, however, met with in people who enjoy perfect health, but is then the result of some former disease which has left strong adhesions of the pleura; and it may also be produced by simple pleurodyne, or pungent pain in the side, unaccompanied by fever or inflammation.

The respiration may vary in *frequency*, or in the number of inspirations and expirations executed in a given time; in the *quickness* with which inspiration and expiration are performed; in the *quantity* of air inspired and expired; in the *difficulty* with which its actions are performed; in their *inequality;* in the *sounds* which attend them; in the *quality* of the air expired; and in the *signs* afforded by *auscultation.*

Respiration may be considered frequent when it exceeds eighteen or twenty inspirations in the minute, and less frequent than natural when it does not perform so many. The more it differs from the natural standard, the more important are the deductions to be made from it. But we must bear in mind that although this alteration may be produced by disease in the respiratory organs, it may also be symptomatic of irritation, and is even natural to some individuals, or induced by very slight causes, as in children and persons of irritable habit, and is observed in spasmodic affections, as hysteria, and in almost all the pyrexiæ. A pain in the chest, any obstacle to the free circulation of the air in the bronchi, which renders a somewhat considerable portion of the pulmonary texture unfit for the performance of respiration, are causes of its frequency; the suspension of the nervous influence, from a congestive state of the veins of the encephalon, or sanguineous or serous effusion into its ventricles, and the weakness of the muscular powers, are those of its infrequency.

The *rapidity* with which the breathing is performed varies, and constitutes *quick* or *slow* respiration. Generally the degree of quickness or slowness corresponds with that of its frequency, but not always. Thus in pleurisy the respiration may be quick but not frequent, the violence of the pain during inspiration producing a quick expiration; and sometimes the respiration may be very quick, but at long intervals, as in cases where the vital powers are sinking, when the rapid manner in which both inspiration and expiration are performed gives the appearance of a convulsive effort repeated at distant intervals. When the respiration is both quick

and frequent it is said to be accelerated, and when this is to a great extent, it becomes panting.

In a full and deep inspiration the *quantity* of air inspired is considerable, in a small one it is less so. The chest may, however, appear much elevated and dilated, yet by no means in proportion to the quantity of air inspired, each inspiration being accompanied by a considerable elevation of the ribs, and motions of the alæ nasi, and not preceded by a full expiration. This is seen in pneumonia, and when it occurs at considerable intervals it has long been considered as indicating some affection of the brain.

Difficulty of breathing, or *dyspnœa*, occurs whenever the act of respiration is performed with uneasiness or pain, or with the sensation of oppression or weight on the chest, when the muscles ordinarily employed in it contract violently, and, as it were, convulsively, and when the accessary muscles are more or less called into action. Great varieties of dyspnœa occur; thus it may be only slight, or laborious, with a greater or less sensation of oppression at the chest, or it may amount to orthopnœa, when the patient is obliged, from the fear of suffocation, to sit erect, and cannot be induced to assume a recumbent position. "In this case," says Collin, "the patients threatened with suffocation cannot preserve the horizontal position; they sit bent forwards, and press their heads forcibly against their raised knees, seeking a solid support for their hands, and thus fixing their superior extremities, they painfully contract the great muscles of respiration, all the efforts of which are concentrated on the chest, to produce its dilatation."

Difficulty of breathing may arise from any cause which presents an obstacle to the free admission of air into the lungs, and to the free and full dilatation of the chest, wherever such impediment is situated. It accompanies a variety of diseases, and is always to be regarded as a symptom of greater or less danger, in proportion to the symptoms which accompany it. In *regular* respiration a succession of equal inspirations take place at equal intervals, each followed by a corresponding expiration. If any inequality is remarked in these, the respiration is said to be *unequal;* thus a quick or a slow inspiration may be followed by an expiration of a different character. When the pleura is inflamed the inspiration is quick, but the expiration, although short in reality, is yet long in comparison with the inspiration, which is easily accounted for by the seat of the pain. When the lung itself is inflamed, the act of expiration, which cannot be performed without painfully compressing the affected organ, is quick, and sometimes scarcely perceptible. Irregularities may also be observed in the intervals; thus, after several respirations, and when we expect the patient to inspire again, a longer interval than usual may take place, when the respiration is said to be *intermittent;* or, as in that which is termed *interrupted*, the expiration may take place before the inspiration appears to be finished, and is then immediately followed by a fresh effort, without the appearance of any interval. Some-

phthisical sputa,—catarrhal, mucus, tubercular matter more or less softened, and sometimes, the pus secreted by the walls of tubercular excavations when completely empty. Although pus is in general more opaque, less tenacious and more fetid than catarrhal mucus, nothing is more common than to see true puriform sputa in simple chronic catarrhs."

Purulent expectoration is by no means, therefore, a criterion of consumption; indeed, the sputa of phthisical patients do not generally contain pus until an advanced stage of the disease, when the tubercles having become softened, form centres or abscesses opening into the bronchi, and persons may die before the tubercles arrive at this stage, from the effects produced upon the respiration and mucous membrane by them in their crude state. Purulent expectoration too, may attend other diseases of the respiratory organs, independent of any trace of tubercles of the lungs.

THE CIRCULATION.

There are few affections in which the circulation is not in some degree disturbed, and in all, the signs deduced from an observation of it are important. In the great majority of cases its affections are sympathetic; since those which can be considered idiopathic must be confined to morbid states of the heart and its appendages, which are, of course, few in comparison with the other numerous diseases to which the body is liable.

Before the writings of Corvisart, little was known of the true symptoms accompanying different organic diseases of the heart and large vessels. The application of the hand to the region of the heart, was the only means employed before the time of Avenbrugger, and this, as Laennec remarks, frequently gives no result, or may even deceive us in estimating the true force of the impulse of the heart, and less certainly indicates the regularity or anomalies in its contractions than the examination of the pulse; as he considered that percussion, also, afforded little else than confirmative or accessory signs, which may often be wanting, he applied the stethoscope to the investigation. But his pupil, M. Collin, remarks, "It may be seen after this view of the pathological phenomena furnished by the heart, that there are only two, the *impulse* and the *sound*, which are certain signs of the lesions of the different parts of this organ, that all the others deduced from the rhythm, the bruits de soufflet, de râpe, &c., have not as yet been observed sufficiently often to enable us to say what alterations they indicate. But I do not doubt that attentive observation and daily application of the stethoscope will, at some future time, furnish the desired information, and render the diagnosis of these affections as easy and precise as that of the greater part of other diseases of the chest."

Every practitioner must wish that this expectation may be re-

alised, but it is to be feared that the advocates of the stethoscope are, in some instances, too sanguine. Many of the signs to be deduced from it depend upon slight differences in sounds, not always easily distinguished even by an experienced ear, and we often find opinions differ in minute distinctions of sound, when heard even under the most favourable circumstances. The application of the stethoscope is not always easy, it is apt to distress or alarm patients, and often from their position, their inability to change it, their great emaciation, and other circumstances, we encounter difficulties, or obtain an exaggerated result. This should not, however, deter us from its use, although it should render us cautious and equally anxious to make ourselves acquainted with all the other symptoms and circumstances of the case, as if we possessed no such auxiliary. In many cases, it may afford us only the more certain knowledge of an incurable disease, and in others, if it leads to a more accurate discrimination, if affords no more certain rules for practice; it may enable us to speak more precisely as to the particular part of the organ affected, yet not in consequence of this knowledge to modify our treatment. M. Andral remarks, "That the different signs furnished by auscultation, and indicating an organic affection of the heart, may be present, and yet no such disease exist; and, again, it is not less certain that this affection may be very severe, and yet ausculation not reveal it to us. "And," he adds, "the method of auscultation has undoubtedly thrown much light upon diseases of the heart. It gives often very useful and necessary information, and we should never neglect to have recourse to it. But alone, and without the aid of other signs, it cannot, except in some rare instances, show for a certainty the existence of such diseases, any more than it can in a very great number of cases alone discover to us the existence of tubercles in the lungs, or even acute inflammation of these organs. It is far from my wish to depreciate the method of auscultation, one of the most beautiful and ingenious discoveries which has been made in medicine for a long time. I seek, on the contrary, to render it more useful, and its application more practicable by not exaggerating its advantages, and by indicating precisely what is most deserving of attention in it."

Many affections of the heart announce themselves by the occurrence of *palpitations*, which consist of a set of quick, regular, or irregular movements of the heart, more or less strong, feeble, constant or occasional, continued or intermittent, circumscribed or extended. In some cases, irregularities may be observed in the action of the heart, independent of any palpitations. The patient feels a kind of weight or uneasiness in the præcordial region, as if some impediment was presented to the action of the heart, which appears to cease, or to be carried on feebly and slowly. Sometimes a degree of tremulous fluttering is perceived like the feeble, but quick agitation of the wings of a small bird attempting to fly.

These different sensations may be all produced, however, by

problem. The natural standard for the general temperature of the human body is stated at about 96° F. Dr. C. Thomson found it to be about 99°, and nearly, but not quite, the same on all points of the surface; and he concludes, from many experiments, that age, sex, temperament, size, or mode of life, produce no difference in it. By most writers, however, it is remarked, that the extremities are colder than the trunk; and Magendie states, that these parts are not only habitually colder than the others, but that their temperature often becomes much diminished, that of the feet and hands, in winter, being often nearly as low as 32° F.

The temperature may be much increased in inflammatory and febrile diseases. Dr. Alexander states its maximum of increase to be 112°, Dr. Fordyce 105°, and the late Dr. Gregory 104° F. This increase may extend generally over the whole body, or be confined to particular parts. Authors, highly deserving of credit, have remarked that, in some local diseases, the temperature of the affected part rises several degrees; while Magendie states, that from experiments carefully made and followed up, and in which he used very sensible thermometers, he never found the part inflamed of a higher temperature than the blood. He has observed a diseased hand some degrees warmer than the sound hand, but even this temperature was still below that of the blood.

In cases where the internal organs are inflamed, the external parts are said to become hotter than natural; thus in inflammation of the intestines, or peritoneum, the abdominal parietes become of a burning heat. The integuments of the head, particularly of the forehead, present the same elevation of temperature in inflammation of the brain and its membranes. The increased temperature of the skin, especially when the pulse is strong and frequent, is generally in proportion to the intensity of the disease which it accompanies. Rostan says, it is modified by the affected organ, so that in inflammations of the brain and its membranes, of the lungs and of the skin, it is much greater than in the other phlegmasiæ.

We have great varieties in its degrees, from slight increase of temperature, accompanied by more or less moisture on the skin, to the dry burning pungent heat of febrile or inflammatory diseases. Increased temperature may accompany diseases which are not of an inflammatory nature. Slight causes of irritation will sometimes induce it; but in these cases it rarely continues uniform, or is so generally diffused over the body, neither is the pulse so much affected. Even in febrile diseases it occasionally increases and diminishes, indicating a corresponding increase or decrease in its causes. In most febrile diseases, a degree of shivering, or sensation of cold, precedes the heat afterwards observed, often enabling us to determine the period of attack. If this shivering be repeated during the progress of the disease, it indicates an increase in the fever or relapse. In inflammatory affections, when flushes of heat succeed to shiverings, we apprehend that suppuration has commenced, if the inflammation resides in organs liable to this termi-

most important is *pus*, which may be produced by inflammation in all the textures, except, perhaps, the tendons and aponeuroses, but which is not commonly observed except in certain textures. It is a yellowish white homogeneous fluid, of the consistence of cream, with a peculiar odour, which sometimes, from the changes produced in it, by accidental admixtures, becomes very unpleasant, and even fetid. Its taste is sweetish. J. Hunter states the largest portion of pus to be composed of round white globules, which swim in a fluid very similar to the serum of the blood, but possessing properties which serum has not. Pus is specifically heavier than water, and its perfection seems to depend upon the large proportion which its globules bear to its other parts. Whenever any constitutional or local cause acts so as to disturb the production of true pus, the fluid becomes changed, in some measure in proportion to these morbid changes, generally becoming thinner and more transparent, partaking more of the nature of the blood, and called *sanies*. Sometimes it is of a greenish or reddish colour, as if tinged with blood, and occasionally the same pus will exhibit a variety of colours in striæ, or stripes; sometimes it is thin, with flocculi of greater consistence floating in it. If pus be slightly agitated with water, it is easily diffused in it, and after standing a few hours falls to the bottom of the vessel; but if, previous to its subsidence, says Grasmayer, a fixed alkali be added to it, it will be precipitated in a gelatinous mass. Mucus is with difficulty diffused in water, requiring strong agitation, and then forming a permanent ropy fluid. There is no difficulty in deciding between either of these fluids when in a pure state; their characters are sufficiently distinct, and we can easily observe the globular character of pus. J. Hunter employed muriate of ammonia as a test, having observed that a drop of pus united with a drop of this fluid was rendered soapy. Sir Everard Home observed, that pus was a whitish fluid, composed of globules contained in a transparent liquid, that it does not coagulate by heat, and is only condensed by alcohol; a very elaborate paper on its chemical properties, by Dr. Pearson, is contained in the *Phil. Trans.* 1809. Dupuytren considers the elastic viscid nature of mucus, which is entirely wanting in pus, as its strongest characteristic, observing, that the more pure the mucus, the more remarkable is the viscidity, which it loses in proportion as it becomes whiter and more opaque, as it approaches more to the nature of pus, until it becomes so near in its character as not to be distinguished from it. Where pus is secreted from a mucous membrane, or when ulceration takes place in an inflamed mucous membrane, it presents a different appearance, becoming more or less mixed with the increased mucous secretion, and forming a muco-purulent matter.

Pus may be exhaled on the surface of a wound or of a membrane, and when formed in organs from whence it has not a ready exit, it may either be disseminated through their substance or collected in one or more centres, called abscesses, and, though not an irritant to the surface secreting it, it may prove so to the adjoining parts. Dupuytren states, that "when the organized textures contract

character of the disease should be understood, its general progress, duration, and event, as deduced from the majority of cases,—but many circumstances peculiar to the individual case must also be kept in mind. One constitution will sustain a patient through a very serious disease, while another may yield to a much slighter attack. The different modifications of disease by age, sex, mode of life, and affections of the mind, must also be taken into account. Some, as inflammation, are serious, according to their seat,—and any particular symptom is rendered important by its connexion with others, and as it affects, or is affected by, the general state of the patient.

From the credit which attaches to the medical man, who has pronounced a prognosis verified by the event, and from the anxiety which the patient and his friends generally express upon this subject, some are induced to hazard their opinions in cases where the greatest caution is absolutely necessary. It is wrong to excite alarm unnecessarily; it is equally so, and certainly much more distressing, to fail to do so, where the circumstances of the case warrant it. The sordid views which may induce some men to magnify every, even slight, case into one of difficulty and danger, cannot be too severely reprobated,—while the prudent caution of an experienced practitioner should be viewed with liberality, and deemed, as it really is, the result of much observation. In most instances more is gained by openness and candour than by any attempt at mystery; and where perhaps no immediate risk is observed, yet we are anxious to be guarded in our prognosis, it is best to state fairly the reasons which influence our opinion,—and although we may not gain the reputation of medical prophets, we shall have a better right to be considered deserving of confidence, as men acquainted with the progress and changes of disease.

TREATMENT OF DISEASE.

1st. A disease, as we have seen, may go on, and by its own direct influence prove fatal: thus inflammation of the lungs may increase to such a degree as materially to impede, and eventually prevent respiration being carried on in such a way as to sustain life.

2dly. The effort which nature makes to remove the disease, may be so far from salutary that it may even prove dangerous.

3dly. A disease may prove fatal by inducing another affection of more danger than itself.

4thly. Some particular symptom may come on during the progress of the disease and destroy life, and yet this symptom may not be essential but only incidental to the disease.

5thly. Such a degree of weakness may be induced during the progress of the disease, or may remain after all the other symptoms have left the patient, tha the cannot recover his strength, and dies from mere debility.

All these circumstances must be borne in mind, in order to form