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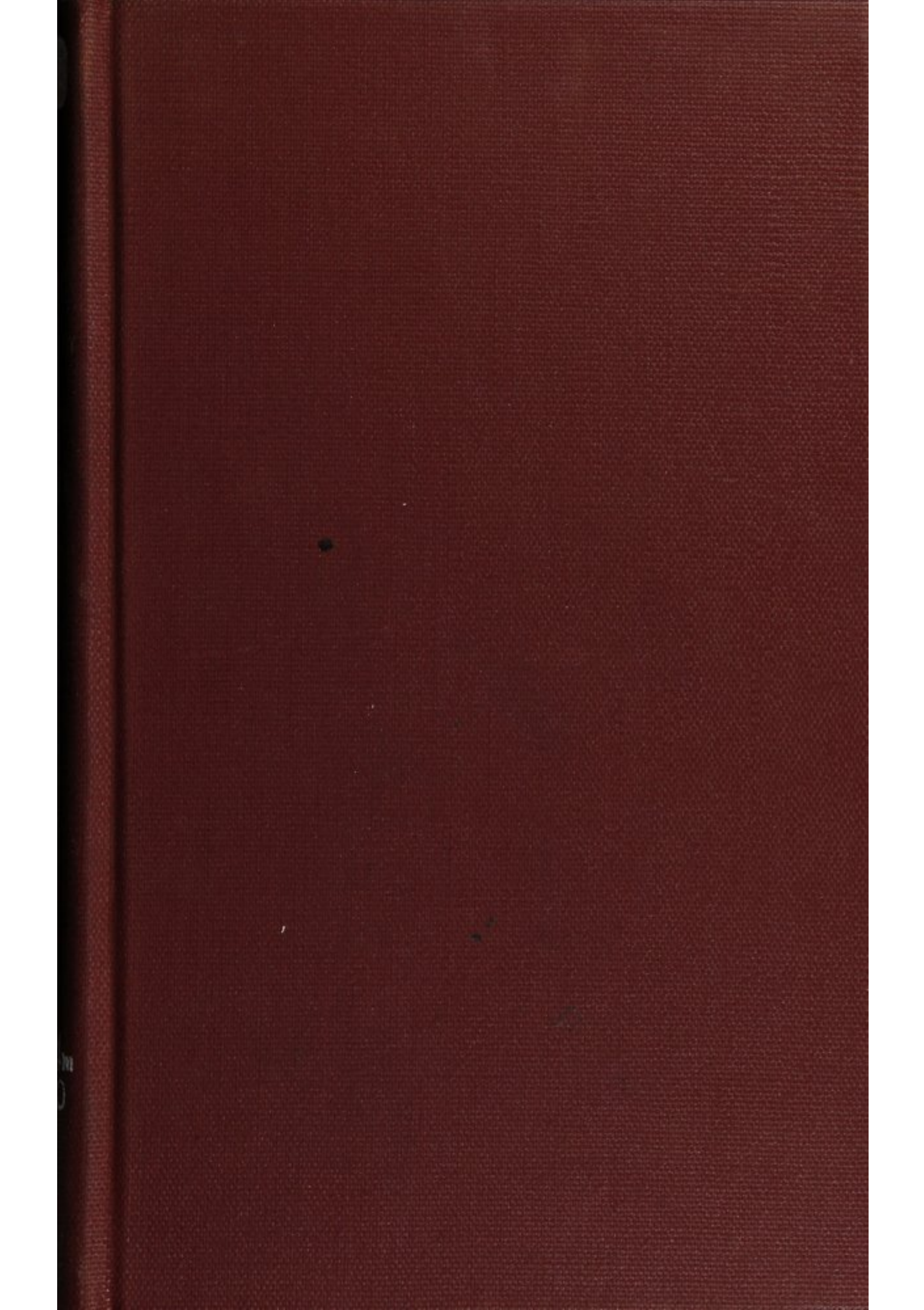
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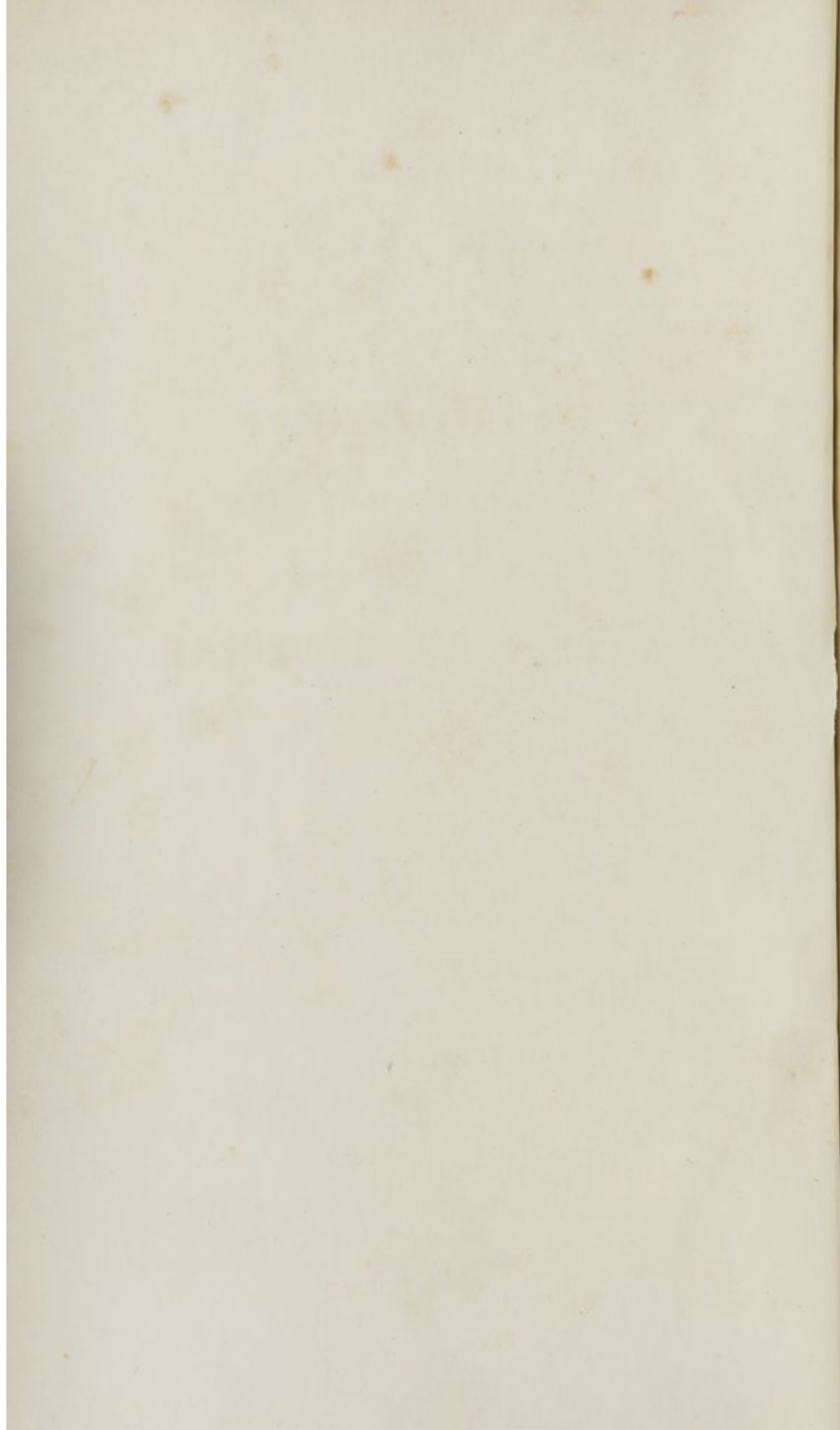
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MANUAL
OF
PATHOLOGY
AND
PRACTICE OF MEDICINE.

BY
SAMUEL HENRY DICKSON, M. D.,

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE UNIVERSITY
OF NEW YORK.

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By SAMUEL HENRY DICKSON,

In the Clerk's office of the United States District Court for the southern district
of New York.

GENERAL PATHOLOGY.

THE science of *Pathology* of necessity presupposes, and is founded upon an acquaintance with the doctrines of *Physiology*.

Physiology is built upon a knowledge of *Anatomy* and organic Chemistry. As *Physiology* is the history of the natural and healthy condition and functions of the body, its tissues, parts, and organs, so *Pathology* consists in a knowledge of the morbid condition of the parts, tissues and organs of the body, and the derangement of its functions.

Disease has been variously but inexactly defined; it may be described briefly as consisting in some change of structure or composition of the body or its parts, or some impairment of function—causing suffering or danger. It always implies irregularity or aberration in the performance of one or more of the functions of the body.

This irregularity of action may be owing to obvious alteration in the structure of some part of the body, or it may occur without our being able to detect any change in the structure of any part. Hence the distinction of diseases into *Functional* and *Organic*—and hence the importance of a close inspection of the condition of parts of bodies dead from disease—a description of which constitutes the useful and interesting department of morbid anatomy.

Disease may be local or general. It is local when the cause producing it acts with special force upon some single part or organ, while yet no participation in the morbid consequences is extended to other parts. It is general when the primary local affection has been communicated or extended throughout the system. Each of these may produce the other. It is plausibly argued that all diseases are primarily local, and afterwards radiated or rendered universal by nervous sympathies, and by vitiation of the fluids of the body. General disease may also in turn produce local affections, as in hepatic and splenic inflammation from the concussions of fever, and in gout and scrofula.

Disease, the perversion of some vital action, is never spontaneous, but always results from the agency of a disturbing cause or causes.

The *Causes of Disease* are almost as varied and numerous as the agents which impress the several organs and tissues.

They are naturally separable into two classes, according to their intrinsic character, 1. The *Specific*, 2. The *Incidental*. The first act by

and through their peculiar properties, which exert an influence essentially injurious to the organism. The second produce a morbid effect, not by any hurtful quality belonging to them, but by *excess* or *undaptedness*; both which terms ultimately refer to the condition of the recipient.

The first may be spoken of in a general way as the Poisons. The second include all contingencies incident to animal life.

Causes of disease are divided in the books into Remote and Proximate. I prefer the terms Efficient and Constituent.

The *Proximate cause* has been absurdly enough regarded as the disease itself. I would denote it as being the first essential link in the chain of morbid actions, whose results become obvious in the symptoms of disease. This is the *Constituent condition* upon which depend all the circumstances which give diseases their characteristic and peculiar form. The discussion of proximate causes—a very complicated and obscure subject—is better deferred, therefore, until we enter upon the consideration of maladies separately. It is in fact an inquiry into the Nature of Diseases.

Remote causes—the agents *efficient* in the production of disease—are distinguished into the Predisposing and Exciting—terms happily chosen as suggesting clearly enough their own meaning. As to the specific energy of these modes of causation, I infer that disease in the abstract may be attributed to the disturbing influence of exciting causes, while the mode and seat of the disease generated, will be determined by the existing predisposition upon which the former has acted. Yet we cannot always draw a line clearly between them. Predisposition may be so strong as to develope disease without the need of application of any transient excitement—as in gout, scrofula, &c.—and on the other hand, an exciting or occasional cause shall have power to produce immediate predisposition, or rather perhaps of itself to determine the nature of subsequent and consequent disease, as in small pox and other contagions.

Brown, Broussais, Parry, and other pathologists have taught that the effect of all such causes is only an increase or enhancement of the natural actions—in other words, that morbid differs from healthy action merely in intensity or degree. This is an important and mischievous error. That morbid causes occasion difference in nature or kind of action, as well as in degree, is proved by the changes which take place in the secretions of disordered surfaces, which are altered in properties, obvious and chemical; and by the new peculiarities of diseased structures which are built up, as in fungus hematodes, cancer, &c.

Predisposition, though spoken of as a cause, is properly a passive state.

It is sometimes obvious and definite—as when exhibited in form and physiognomy. Sex, color, and temperaments belong to this class. It is evident that such predisposition is not incompatible with health. The intense or exquisite development of any Temperament, however, is a condition, if not absolutely morbid, yet full of danger. It is perhaps properly a Pathological state.

An obscure and indefinite predisposition belongs to the *intercurrent period* of paroxysmal diseases, and to the *latent period* or incubation of an invading malady.

Predispositions are Original and Acquired. The first may be subdivided into, 1. The Idiosyncratic or personal, 2. The Hereditary or parental, 3. The Tribal or national or generic.

The Acquired may be, 1. Normal, arising from habit, mode of life, &c., and 2. Abnormal, induced upon previous or existing disease.

These latter are often of irresistible force; sometimes becoming matters of habit, “a second nature;” at others, probably engrafted on minute changes of structure in the parts affected, as in rheumatism, gout, scrofula.

All the individual predispositions may be transmitted hereditarily. Of this the examples are indefinitely numerous.

Idiosyncracies are either the result of internal peculiarity of conformation, or of sympathetic association; and thus present instances of both original and accidental predispositions.

Among external sources of predisposition, we enumerate climate, topographical peculiarities of surface, of country and soil, &c.; hence national temperaments: state of society—many diseases are the product of civilization and refinement, and so absolutely artificial: conditions of life and occupations, quantity and quality of food.

Predispositions may be either permanent or transient. Among the latter we comprise those which belong to age, infancy, puberty, &c., to the conditions of fatigue, debility, excess; and to the state of sleep, which is apt to offer easy access to asthma, epilepsy, cholera, &c.

Exciting causes may be classed under several heads. 1. The *Atmospheric*, including known and unknown qualities of air, thermometric, hygrometric, electrical and barometrical conditions. All extremes seem to be compatible with health, but there is a tribal difference as to the liability to be affected by them; abrupt alternations are considered unsafe.

Change of climate is a very familiar cause of disease in the present day of emigration. Vegetables and the lower animals are affected by it as well as man. The evils thus occasioned may be lessened by certain precautions, but all emigrants to distant or contrasted climates must

expect to suffer more or less before they can attain a complete assimilation or adaptation to their new circumstances.

Heat produces apoplexy, phrenitis, inflammatory fever, hemorrhage. It affects the internal viscera by increasing the force and frequency of the circulation, and by their sympathy with the skin, whose exhalation it increases largely; thus it gives rise to hepatic, gastric, and intestinal derangements.

Cold causes pernio and other external inflammations; and by constricting the surface, and interfering thus with the functions of the skin, gives rise to a host of diseases of undue determination—pleurisy, enteritis, catarrh, &c.

Alternations of temperature are proverbially injurious. Heat applied after cold is perhaps the most dangerous of the two changes.

2. The *Dietetic*, comprising all food and drinks. Man is omnivorous and may subsist and enjoy health on an infinite variety of diet. Yet we can trace many diseases to food of improper quality, or in improper quantity. Scurvy arises from salted meats, probably from all restricted and exclusive diet long persevered in, under circumstances of physical and moral depression; dyspepsia from undue use of acids and condiments; colics, &c., from meals too large for the stomach. Cookery is a truly important science, and it is an absurd affectation to disparage it. The preparation of food requires talent, judgment, skill and care. The chemical rules are not well decided, and the best practice is yet empirical. Much of the ill health of our country is ascribable to ill cooked, hastily eaten, half-masticated victuals.

Water with which food is diluted and thirst quenched, is never pure. The various substances which it contains in mixture and solution, earths, alkalies and gases, differ according to the soil through which it percolates. They may all become injurious to health.

Intemperance in drinking fermented and alcoholic fluids is dangerous in proportion to their intoxicating power. Their immediate impression is made upon the stomach and brain; but acting upon predisposition, they may occasion an infinite variety of maladies.

3. The *Personal*, referring to the special habits and mode of life of the individual.

Dress, Amusements, &c., if not properly regulated, all become in their turn exciting causes of disease. The female stay or corset has been animadverted on much more than it deserves. Properly arranged, it gives support as well as adds neatness and beauty to the form. It may be so tightly drawn as to interfere with locomotion and respiration, and to oppress the abdominal viscera: the steel piece may also be too broad, and thus injure the breasts.

Occupations are among exciting causes. Millers, stone-cutters, needle-grinders, cotton-ginners, are subject to bronchial and pulmonary inflammation from the mechanical irritation of particles inspired. Painters, gilders, &c., are injured by the fumes of the metals they employ. Manufacturers in general suffer from confinement and monotony of life, with utter hopelessness of change or improvement of condition.

The passions must be enumerated here. I regard them as all stimulating in their immediate influence, which is directed primarily upon the sensorial organs.

Anger, grief, and joy, produce apoplexy, hemorrhage, phrenitis, hysteria, &c.

Love is a dangerous passion even if successful; when otherwise, frequently gives rise to insanity.

Fear increases the velocity of the circulation, and often adds greatly to the force of muscular action; it has been known in a few hours to give the hair a silvery whiteness, and the whole frame the aspect of sudden and premature old age.

4. The *Social*, comprehending all the details of public and municipal Hygiene; density of population, &c.; manners and customs of civilized life, savagism, &c., &c.

5. The *Poisons*, divided into the vegetable, animal, and mineral; to which I would add a fourth, the gaseous or aerial, as the sources of some of them are not well known, while their form is obvious. The *Vegetable poisons*;—some of these act by inhalation, as the upas and mancinella; others by contact with the skin, the cerbera arovai, mannarilla, cashew nut, rhus radicans and rhus vernix, mustard, &c.—these irritate and inflame; others still upon the stomach and intestinal tube—these are our emetics and cathartics; and others on the nervous system—these are the narcotics, which relax, intoxicate, and produce stupor, coma and convulsions; lastly, others require to be introduced into the circulation, as the woorara and ticunas.

The *mineral poisons* are multiplied in number by chemical processes. The metals are in their proper state harmless, but the salts of many of them are deleterious, as of mercury, lead, arsenic in a high degree of intensity, copper, antimony. The pure alkalies and the acids are irritating and corrosive.

The *Aerial poisons*:—Some of these are of known chemical origin and qualities, as the several irrespirable gases; others are in both these respects obscure and undetected, as epidemic contaminations and malaria. Of the first class, the most common is the carbonic acid gas, and the other combinations of carbon and oxygen so often met with in mines, wells, vaults, &c.—these produce asphyxia. The pre-

caution should be taken of sending into suspected places a lighted candle; if this cease to burn, quicklime should be thrown in, in sufficient quantity to absorb while slacking, the superabundant carbonic acid gas. Charcoal burned in ill-ventilated apartments consumes the oxygen, and combines with it so rapidly as frequently to have thus occasioned loss of lives. Air which has been breathed becomes soon unfit for respiration. A terrible instance of the effects of confinement in a close apartment is recorded in history as having occurred in Calcutta upon its surrender to the Suba of Bengal in 1756. One hundred and forty-six of the English garrison were confined in a narrow dungeon during a hot, airless, and miserable night—one hundred and twenty-three perished before morning. The want of ventilation of which the above is an extreme case, is in intermediate degrees productive of varied morbid influences, as implying the presence of numerous and diversified aerial poisons. To this we attribute the fact that general mortality everywhere, is in proportion to the density of population, when it transcends a certain rate. The notorious insalubrity of cellars as domicils is owing also to it. It increases the proportional frequency of phthisis. Typhus is generated surely by it. Bandelocque ascribes scrofula to it. Toynbee attributes deafness and frequent ear-ache to the same cause.

Malaria.—This term is preferred in compliance with modern usage to the word *miasm*, which has both etymologically and in the writings of many physicians, an extension so wide as to include all aerial contamination, whether chemical, contagious or epidemic. It is best defined as a peculiar distemperature of the air of certain regions, derived from sources to be considered in order, traceable only by its effects, and as yet undetected by any chemical or mechanical investigations. Its nature is unknown: its very existence has been made matter of dispute: all the influences ascribed to it have been attributed to the mere agency of moisture, or of moisture associated with heat; an error evidently owing to the concomitance of these exciting causes and their tendency to promote its efficiency.

The principal source of malaria is believed to be the decomposition of vegetable matter. Vegetable putrefaction developes animalcular life and fungous vegetation. It gives out often unpleasant odors and gases unfit for respiration. It is always unfriendly to human life and health, and even in the most local and limited way—as in the foul hold of a ship, or a potato cellar, is capable of originating serious evil. The growth and production of vegetables, as well as their subsequent decay, are fostered by the presence of moisture and the action of high temperatures. Certain effluvia thus disengaged produce forms of fever

and other diseases, whose occurrence is regarded as proving the presence of malaria; an agent capable of being everywhere identified by these its effects. Hence malarious fevers appear in summer and autumn, and are intense in proportion to the temperature of the region affected. In hot countries the plague, yellow fever, bilious remittent, &c.—in colder regions intermittents of chronic character, hepatitis, jaundice, &c., have been ascribed to this cause. Cold, when sufficiently intense, puts a check to the influences of malaria. Heat promotes the action of malaria, by generating a predisposition in the system favorable to it, and by stimulating and afterwards relaxing the vessels of the skin and liver. Moisture is not only necessary to its production, but likewise becomes the medium in combination with which this poison acts upon the body—a combination, it would seem, of essential necessity to give it effect. Hence the known insalubrity of fogs and dews in malarious districts, and hence the advantage of elevation from the exhaling soil.

A certain degree of concentration and a certain amount of dose, are necessary also to the efficiency of malaria. It is in this property chiefly that a *virus*, technically so called, differs from a *poison*; the former being independent of both these circumstances; thus the smallest particle of variolous or vaccine matter can infect the whole body. It may indeed be diluted to inefficiency, but if it infect at all, the degree or force of its action has no reference to the amount or concentration. The action of a poison however is always modified by the dose. This constitutes the principal objection against the doctrine of the organic nature of malaria—as consisting of animalcular life of ultra microscopic minuteness, or of cryptogamic vegetation, equally beneath the reach of our vision, however powerfully aided. The sources must be large and extensive to produce malarious disease. A contagious virus adhering to any fomites in smallest amount is often efficient; but it is impossible to convey enough malarious atmosphere from the place which it renders deadly, or any of its constituents, animalcular or fungous, to produce disease at a distance.

Calms are favorable to the concentration of malaria; winds and storms waft it away, disperse and dilute it.

Malaria probably acts upon the skin primarily. Thus we account for the insusceptibility of the negro race, who perhaps differ from the white as much in this point as in any other. It also acts more readily during sleep, when the functions of the skin go on with energy.

Anything which depresses the vital power may be said to assist its invasion—fatigue, want of food, of rest, of clothing, &c.

Habit diminishes in the white man rather the violence of its effects

than the susceptibility to its action. Many residents in low countries have regularly annual attacks—these are of no great severity, but infallibly undermine the constitution. A stranger is assailed more violently. The latent period is of doubtful length, and differs probably in proportion to the intensity of cause applied, which may at once excite, or may only generate predisposition.

Trees are found to oppose an efficacious barrier to the invasion of malaria. It is somewhat uncertain whether this is owing to the mechanical impediment which they offer to its passage, or whether it is better accounted for by the supposition of the existence of some attractive force, which causes the miasma to adhere to their foliage, or by the suggested evolution of some efficient counter-agent. This last conjecture may assist us to explain the healthfulness of pine barrens; among the favorable circumstances in whose position, I would enumerate the terebinthinate exhalations from the trees, as probably balmy, tonic and salutiferous. The *Jussiaea grandiflora* of our southwestern bayous is maintained by Dr. Cartwright to be a corrective or antidote to malaria.

Among the sources of malaria the decomposition of decaying volcanic matter has been mentioned, and applies well to the phenomena familiar in Italy. The country about Rome is not marshy but volcanic; so of Civita Castellana, Fondi, &c. Ferguson declares the only necessary condition to be "paucity of water succeeding its abundance." Some medical philosophers would substitute the agency of specific animalculi for all miasmatic and epidemic influences; and Dwight has proposed animalcular putrefaction as a source of malaria.

The most plausible and rational theory of malaria is that taught by Prof. J. K. Mitchell, of Philadelphia. He ascribes the poisonous influence to the presence of the minute *sporules* of certain *fungi* diffused in the atmosphere; and supports this view by a large accumulation of facts and much ingenious reasoning. It is not inconsistent with the great mass of observed phenomena. Fungi are abundant wherever vegetable decomposition goes on rapidly; their production is favored by animal putrefaction; volcanic tufa is fruitful of them. There are however difficulties in the way of this hypothesis not yet surmounted; objections not yet removed.

Ozone is an atmospheric poison discovered recently by Schoenbein, and supposed to give rise to catarrh and influenza. It is the oxygen of common air rendered active by electricity. It is known to be present by the increased promptness of reaction between iodine and starch. Cholera has been ascribed to it, but without reason.

The *Animal poisons* are divisible into three classes: 1st. Those

which result from natural and healthy but peculiar actions. These are secretions intended for attack or defence, as the sting of the bee, wasp, &c., and the venom of the snake. 2d. Such as are produced by diseased processes—the milk and butter of a milk-sick cow, the saliva of a rabid animal of the feline and canine tribes, vaccine and variolous matter, &c. The saliva may become poisonous by rage, or other conditions of the mind and body of the subject. Instances of this sort are given by Wright; and some curious facts to the same purport are recorded by Dunn in his account of the Oregon Indians.

The processes which immediately precede, and those which accompany or follow death, tend to generate a poisonous quality in animal matter. The flesh of diseased animals is unfit to be used as food and becomes injurious when so used—in one instance a specific disease is thus communicated, “milk-sick,” a gastritis. Among anatomists a very severe and not unfrequently fatal affection is produced by puncture and inoculation, with the scalpels, &c., imbued with the fluids of a subject. The absorbents inflame, and the glands; a cutaneous eruption comes on, attended with violent irritative fever and great prostration of strength.

History, both ancient and modern, offers us frequent instances of pestilence produced by animal putrefaction. The burial grounds of Paris, London and New York proved to be injurious to the health of the vicinity. Catholic churches on the continent of Europe require to be disinfected occasionally.

Putrescent animal matters used as food are often highly poisonous, as in the instance of the German and Bologna sausages.

Contagion is defined to consist in a peculiar matter given out by a diseased surface, which possesses the power or quality of generating in a healthy body a diseased condition similar to that whence it derived its origin. It must possess the power of reproduction or self-multiplication; it is therefore probably organic in its nature, whether animalcular or vegetable, a fungus as some suppose, is not easy to decide. Contagions perhaps vary among themselves in this particular, some being animalcular and some of vegetable character.

To prevent confusion in the use of language, I would follow the distinction proposed by W. Philips, in which contagion is pointed out as the morbid poison, and infection as the act of communicating disease.

The matter of contagion may be either palpable or impalpable. Vaccine, chancre, gonorrhœa, psora, offer examples of purely palpable contagions. These are transmissible only by actual contact of the morbid secretions with some portion of absorbing surface.

Scarlatina, rubeola, parotitis, pertussis, give out an imperceptible

emanation which affects the healthy subject, we know not exactly how, coming in contact with some surface which admits its entrance or impression.

Variola, plague, varicella, produce a virus of palpable form, which is capable of acting either when directly applied, or after having become impalpable by solution or diffusion in air.

Of the physical and chemical qualities of the matter of contagion but little is definitely known, except in a few instances. It is not only thrown out in a distinct form, but seems to be diffusible in the blood, unless we suppose the whole mass of blood to become contagious matter. Transfusion of blood has communicated glanders and farcy in the horse and ass; and Home, Speranza, and others, have communicated measles and scarlatina by sanguineous inoculation in the human subject.

There are but two agents in nature which have been plausibly regarded as specific disinfectors—lime and heat. Chlorine and some of its combinations have been ranked here, but I think without sufficient proof. Vinegar and sulphurous acid are also employed.

Contagious matter is considered a virus rather than a mere poison, because quantity does not modify its effects. Hence also it has been supposed to act by contaminating the fluids of the infected body, and impressing on them a progressive change or *assimilation*, as it has been termed. This change is spoken of as analogous to *fermentation*.

The matter of contagion varies in reference to its modes of efficient application. It infects by

1st. Inoculation—insertion in a wound or abrasion, either of a palpable matter or of diseased blood—as in vaccine, small pox, herpes, tinea capitis, hydrophobia. Under this head we place, of course, sanguineous inoculation, and transfusion of blood, as in measles and scarlatina.

2d. Contact—favored of course by friction or protracted application, as in ophthalmia, psora, gonorrhœa, syphilis.

3d. Confinement in vitiated air, as in hospital gangrene, erysipelas, perhaps phthisis.

4th. Near approach, as in typhus, scarlatina, measles, hooping cough, parotitis.

5th. Fomites. Various articles which absorb contagious matter are so called; woolen and cotton cloths, furs, feathers, &c. These retain it long and tenaciously, and preserve its virulence little impaired. The clothes of a physician, it should be always remembered, may, by thus entangling contagious particles, convey them and communicate disease.

6th. Atmospheric diffusion, as in plague, small pox, dengue, cholera, and numerous others.

Contagion has no other source than the morbid actions in diseased bodies; but it is an error to infer that contagious diseases arise exclusively from the influence of contagion. They differ widely in their origin. Some are easily traceable, as psora, lues venerea, typhus, ophthalmia; of others the history is obscure, as of measles, pertussis, &c.; but indeed it is obvious that all must have had a spontaneous beginning, apart from contagious transmission.

Contagions differ in regard to their latent periods after infection; some of them follow a known rule, liable to exceptions. Thus, after vaccination and variolous inoculation, about three days pass away before any obvious results occur. For the most part they are indefinite. Typhus has been known to assail immediately after exposure; the latent period of measles often extends to a fortnight or three weeks, and hydrophobia has been postponed for six months or even a longer time.

Contagions differ also in comparative force or efficiency; from small pox, which extends itself either by inoculation, contact, mere approach or aerial diffusion, to phthisis, which requires close and protracted confinement within a vitiated atmosphere of narrow limit. Scarlatina, typhus, pertussis, and cholera, will occupy a middle place in this comparative catalogue. It is probable that no disease is contagious throughout the whole of its duration, and it would be interesting to know the *contagious stage* of each individual malady communicable in this way. Small pox has perhaps two such periods; the first being the eruptive stage, when an impalpable matter is given out from the whole surface; the second is ascribed to the maturation of the palpable virus, which is assumed to be diffusible in the air.

The contagious periods of febrile diseases seem to me to be much more limited than is generally supposed.

It is not easy to decide the question of the contagiousness of any given form of disease; the following would appear to be the best and most reasonable tests that can be offered:

If, in repeated instances, under the notice and by the report of competent observers, a single case be the forerunner of others in the immediate neighborhood, provided the circumstances of season and locality are sufficiently varied to remove it from the list of endemic affections.

If it exhibit an evident preference for a dense population, or confine itself within the limits of towns, cities and villages.

If a household or community, previously healthy, be attacked suc-

cessively after known intercourse with a sick body, or contact with fomites.

If those escape uniformly or very generally, who take care to avoid such cases and fomites, and infected neighborhoods.

The questions concerning contagious disease are of very great importance, as they bear upon the commercial and ordinary intercourse of nations.

Superfluous regulations of a restrictive nature have often been stigmatized as cruel ; the imputation will lie more properly against such as are inadequate. Every community has a right, and is indeed bound in duty, to establish its own quarantine regulations.

Some of the contagions are endowed with the property of destroying in a system once affected by them, the tendency or disposition to a recurrence or second attack—as variola, rubeola, pertussis, parotitis. From the singular fact that vaccine exhibits a protective influence in this manner, to shield from, and at any rate to modify small pox, some have inferred their identity ; explaining the obvious differences upon the conjecture, that the former, in a course of successive transmissions through the systems of the lower order of animals, as the horse and the cow, has undergone these alterations in external character and symptoms. This view is not satisfactory. That there is a specific distinction between them seems proved by the fact that while vaccine protects against or notably modifies variola, it does not so modify or protect against itself, but may be repeated many times in the same subject.

The majority of contagions, and especially the non-febrile, give no protection against second attacks, but may recur with indefinite frequency.

Diseases are spoken of as endemic and epidemic ; the latter being divided into local and general epidemics.

Endemics are of permanent prevalence in special localities, governed perhaps by known conditions of season and temperature. Intermittent fever, and bilious remittent, are endemic in all malarious regions ; yellow fever in Havana and Vera Cruz ; cretinism and goitre in the Valais ; pellagra in Lombardy ; milk-sickness in several portions of our southwestern country ; tumid leg in Barbadoes ; plica in Poland.

Local Epidemics, often confounded with the above, are occasionally prevalent, in certain localities. The causes of this prevalence are both transient and obscure, their influence bearing no obvious relation to seasons, as distinguishable from each other. Yellow fever sometimes prevails as a local epidemic in situations where it is not endemic ; so also dysentery, typhus, &c. Both contagious and endemic diseases

may, from unknown circumstances, become local epidemics, as bilious fever, hepatic affections, scarlatina, plague and pertussis.

General Epidemics.—Under this head we comprehend all those forms of pestilence which have at various periods spread themselves over the world, unconfined by the limits of geographical position above referred to, and in many instances uncontrolled by whatever conditions of season, climate, and national peculiarities. Such was the “black death” of the fifteenth century; such are influenza and cholera.

Of the several causes of endemics it will be best to treat in detail, under the several heads to which they belong. Concerning the *origin of epidemics*, a few observations may be made in this place:

1. Local epidemics have a definite reference, which although it may not be well understood is uniformly observed, to the locality and other circumstances of the position where they occur.

2. General epidemics admit of no such circumscribing conditions.

3. Endemic diseases, if of febrile character, often become local epidemics; the non-febrile show no such power, with perhaps some rare exceptions.

4. The febrile contagions, however generated, also become frequently, local epidemics.

5. Endemics are incapable of becoming general epidemics, because limited, as by the description of their sources.

6. Febrile contagions on the other hand may and often do become general epidemics, spreading on all sides, regardless of locality, climate or season.

The epidemic prevalence of disease depends simply on the multiplication and diffusion of the cause of the disease, whatever that may be—the *materies morbi*. The *materies morbi* of the general epidemics must be specifically different; no two being similar, we can lay down no laws of epidemics. The cause of influenza may be ozone; but influenza, apparently a mere catarrhal fever, is producible as many believe by a contagious influence, animalcular perhaps; a sporadic attack may be brought on by exposure to cold and moisture or atmospheric changes; in some persons by exhalations and odors. It is probable that most of the *materies morbi*, the causes of general epidemics, are organic, because they are self-multiplying. It is probable that some are of vegetable nature—fungous; they abound under circumstances favorable to growth of fungi. It is probable that others are animalcular; their zigzag mode of progression and capricious limitation are thus best accounted for.

In order that it may produce a general epidemic as contra-distinguished from a local epidemic, the *materies morbi* must be capable not

only of indefinite reproduction, but of retaining its characteristic causative influence throughout every variety of season, climate, local position, temperature, habits and modes of life, whether individual or national.

"A single word," observes Farr, the registrar-general of Great Britain, "is required to replace the long periphrasis, epidemic, endemic and contagious diseases." This word he has supplied—"zymotic," from the Greek verb signifying *to ferment*, implying, in accordance with Liebig's notion, the presence of a small portion of poison multiplying itself.

The capacity for propagation or self-extension is most notably different in the different forms of epidemic disease. Suppose a ship to arrive in any given seaport town, having her hold filled with infected atmosphere from a rice-field; or from a city where typhus is prevailing; or from Vera Cruz or New Orleans when suffering from yellow fever; or from some seat of epidemic cholera.

1. The rice-field air, however impregnated with poisonous malaria, would be harmless to all around. If any one entered he would bring away with him no efficient poison adhering to his clothes or person, though he might fall sick (especially if he slept in it) of remittent or intermittent fever.

2. The typhus atmosphere may perhaps diffuse itself, though this is doubtful. To become efficient as a cause of disease it requires that a subject remain in it some time, or labor under some predisposition from fatigue, debility, or the like.

3. The yellow fever atmosphere would probably spread itself, the season being favorable, and attack subjects in the neighborhood.

4. The cholera atmosphere would scarcely fail to diffuse itself on all sides; and in each of the last three cases, every patient would become a generating centre, adding to the quantity of virus in the air of the region into which such a ship is introduced.

Parasitic animals are classed among exciting causes of disease. I do not doubt their evil influence, but regard it as questionable whether they are causative in a primary or specific sense. Psora is supposed to arise from the presence of the acarus, or "itch insect." Of many of the entozoa, the trichuris, strohgylus, &c., the relations are unknown. The most familiar of them are the intestinal worms. Of these the lumbricus is met with most frequently, and seems capable of exciting in an infested child almost any form of disease, according to its predisposition. Ascarides and the tœnia give rise to peculiar symptoms, but neither depend upon nor bring on any specific malady or derangement of the system.

A great many varieties of disease have been ascribed to animalcular

or microscopic parasites—dysentery, cholera, yellow fever, &c. Even schirrhous, fungus hæmatodes, encephaloid and tubercle are classed by Prof. Lanza as filozoid or parasitic.

The *parasitic vegetations* shown by the microscope in aphtha, porri-go, &c. have been regarded as causes of these morbid affections. I think it at least doubtful whether they are not results rather, or effects of the conditions with which they are coincident.

The *fluids* of the body preponderate very considerably, being in a ratio of 9 to 1 to the solids, as some physiologists calculate. This estimate I regard however as somewhat exaggerated.

The primary seats of the vitality of the different portions of the animal structure, are the sensorial and circulatory systems. Every part of every tissue depends immediately upon its nerve and the blood sent to it for its life, and these, the nerves and blood, are dependent upon each other. Each atom which is gifted with life receives it from nerve and blood.

These then must be the primary seats of disease.

Diseases purely functional may be said in the first instance to affect exclusively the sensorial system.

Structural diseases, on the other hand, affect the vascular system primarily. Sensorial and vascular derangement intermingle together and produce each other.

Nervous and functional affections may run into or produce vascular and structural derangements. Too intense light will occasion ophthalmia. Functional affections of the vascular system, by continuance, can scarcely fail to produce structural disorder, as in fevers, inflammation, &c.

It has been much disputed whether the fluids can ever be the primary seat of disease—no one can doubt that they undergo certain obvious changes in its progress. Whether any such changes are to be estimated as among the primary and essential circumstances, is the true question, and I am disposed to answer in the affirmative. The ancient advocates of the humoral pathology carried their views on this subject quite too far, attributing all diseases to alterations in the qualities of the fluids, some of which cannot be proved to occur at all, whether as cause or effect. But exclusive solidism went equally far into the opposite extreme. Truth lies as usual in the medium. Chyle varies in quality according to the food whence it is obtained. Blood must vary also, as derived from chyle. Scurvy and some cutaneous affections, are the direct result of confinement to improper diet. Blood is also liable to many and important changes of condition, referable

to the more or less perfect performance of the function of respiration. That important diseases may thus arise which shall depend directly on the state of the blood, cannot be rationally doubted. Typhus may take its origin in confined habitations, as well as in impure, insufficient diet.

The humoral pathology of the present day seems to me to be pressed too far, however, by its advocates. I cannot accept the chemical theories of living change as explanatory of all nervous disease—of all sensorial action indeed—however ingeniously maintained by Harrison and others. Nay, even as to the secretions and excretions, they are somewhat less satisfactory than plausible.

DIAGNOSIS consists of such knowledge of the seat, nature and history of any given disease, as shall enable us to distinguish it from every other. Pain will often point out the locality of disease. The imperfect performance of known physiological function is, however, still more important as a diagnostic symptom. Sympathies of noted and recorded occurrence, whether understood or not, often serve as valuable guides. But we are liable to be misled by each of these. Some important and dangerous diseases occasion little or no pain. Some painful affections imply little or no danger. And the morbid sympathies which connect the organs are in numerous instances highly irregular and obscure.

Scientific diagnosis has recently advanced greatly, and deserves to be closely studied and carefully applied. By physical examination, auscultation, percussion, the speculum, the microscope and chemical analysis, we may learn much more of the seat and nature of certain cases than was formerly possible. Yet with all these means, we must not neglect the empirical signs, which betoken to the experienced observer certain coincident conditions.

The usefulness of *pathological anatomy*—the examination of bodies dead of disease, deserves to be carefully considered in this relation.

It cannot, except in a very few, and properly accidental cases, teach us anything of the causes of disease.

Among the effects of disease which it detects and developes, it cannot help us to distinguish between incidental and essential lesions of structure. As to impairment of function merely, it gives no information. Nor can it ever aid us in tracing the primary locality or origin of disease; nor in following up its effects in successive series of consequences. The true value of morbid anatomy lies in connection with observations carefully made, and exactly noted, during the progress of any given case, collated with reference to the cause of the attack, its mode of commencement, and its entire and minute history. By

an observation of frequent or constant coincidences, we are taught to direct our attention to organs liable to become implicated in future cases of similar character. The physician, therefore, should not neglect to unite these offices; he should take careful and precise notes at the bedside of the sick, nor consider himself to have performed all his duty, until he has instituted a minute examination of the dead body.

The *tendency* of all disease is, to death or disorganization. The old dogma of a restorative power in the constitution, a *vis medicatrix naturæ*, should be abandoned as without foundation.

The cessation of disease (unless when brought about by remedial treatment) is owing merely to the removal of the causes which produce it. Sometimes the exciting cause is taken away; at others, the predisposition upon which it acted disappears—is, as we say, exhausted or worn out. The well constructed, admirably ordered mechanism of the animal body, resumes its natural action, when the impeding or disturbing agent ceases to exert an influence upon it.

This however does not result from the action of any special power of resistance or remedial energy; but it is the merely passive effect of the removal of the cause of the disorder, while yet the powers of life are unexhausted, and the organism not fatally impaired in structure.

It is absurd to suppose disease to be in any case a natural or spontaneous action of the living body, or to imagine any principle prepared or provided to procure its removal: doubly absurd to suppose that such principle should act, such effort be exerted through and by means of the very processes in which disease consists, and through which it develops itself. Disease, as Brown, and after him Rush, affirmed of life, “is a forced state.”

Morbid causes produce *death* in two ways. Disorganization to a certain extent, is evidently incompatible with a subsequent resumption of the functions of any given system of parts. But, besides this, the mere interruption of an important function for a time is often fatal, without any lesion of any part or organ, as in suffocation from drowning, and in some cases of syncope, &c.

Death from disease must vary in its attendant circumstances, with direct reference to the modes in which it is brought about.

Euthanasia or death from old age, is owing to defect of action in the organs of supply, and the consequent failure of all the functions from the waste and wear of the tissues.

Death is best defined to consist in a cessation of excitability, the loss of the capacity of being impressed by, and of reacting upon stimuli applied. The phenomena of death do not constitute that state; they may all be present when animation is only suspended, and the subject capable of

resuscitation. Interment in cities or populous towns, should be strictly prohibited; the ancient practice of burning dead bodies, ought on many accounts to be preferred, wherever practicable.

The *Phenomena of Disease* demand the most assiduous attention as forming the basis of Diagnosis and Prognosis in every case. They divide themselves naturally into two groups, the objective and the subjective. Those are *objective* which the physician may himself observe and estimate: those *subjective*, the existence and degree of which he can know only from the patient.

It should be our constant effort to enlarge the extent of the first series, and to render the inferences from them more clear and precise. In many cases we must depend on them exclusively, as in the diseases of infants, idiots and suspected malingerers.

In some maladies we are thrown upon the second series almost entirely, as in neuralgia and other affections of which pain is the chief element.

Considered practically, diseases are mere collections of symptoms, the proximate or common cause of which is exceedingly obscure and difficult to be traced. These phenomena may, in this place, be considered in the order of the physiological systems and functions which they disturb or affect, and their rationale attempted to be given.

I. Of the *Digestive System*.—Its disorders are shown by

1st. Alterations in the appearance and conditions of those portions of the system which it is in our power to examine. The tongue is furred, or covered with a morbid mucous coating, when the stomach and bowels are deranged and their secretions vitiated. It is red, and sore, and ulcerated, when they are inflamed. In fevers it is swollen, and sodden, and variously discolored on the sides and surface, if the stomach is irritated and the hepatic actions disturbed. In typhoid affections it is dry and of a dark hue; covered with a tenacious sordes or chapped. It is cold in cholera and pale. In purpura and the hemorrhagic state of fever, it is livid and smooth, and exudes blood. Its papillæ protrude, of a bright crimson tinge, in scarlatina. The gums are spongy, swollen, and disposed to bleed in scurvy, purpura, and in the hemorrhagic forms of fever. The lips, cheeks, and the whole lining membrane of the mouth are apt to ulcerate—especially in children—when the mucous tissue of the stomach and intestines is irritated. The teeth and gums as well as the tongue are blackened by sordes in typhus.

The *abdomen* should be explored. Meteorism is shewn by tension or intumescence, light and resonant upon percussion; by fluctuation

we know the presence of fluid effusions; aneurism by pulsatory tumor; and physconia by position, hardness, and weight.

2d. By functional disturbance manifested in any obvious way, as anorexia, gastric oppression, nausea. Vomiting comes on not only to rid the stomach of some load, but is produced by any mode of irritation of the alimentary tube and its inflammations; it may arise also from gastric sympathy with other organs, as the uterus in pregnancy, the brain in apoplexy, in sea-sickness, and after blows on the head. In fevers, it supervenes upon both gastric and cerebral derangements.

3d. By uneasiness or pain seated in any of the organs. Some abdominal pains are unaccounted for, such as those comprised under the terms gastralgia and gastrodynia; others arise from inflammation; some from flatulent distension, and some from mechanical pressure. Some probably depend upon mere hyperæmia, or vascular engorgement. It is usual to lay great stress on intolerance of pressure as diagnostic of inflammation, but this may be too much trusted to: parts forcibly distended are painful on pressure.

4th. By changes in the result of organic action, morbid secretions. The matters ejected in disease are exceedingly various; acid, oily, alkaline, bitter, white, brown, green, blue, black as in yellow fever, albuminous as in cholera, &c. These qualities are not always to be accounted for; of some the explanation is obvious, and so are the inferences to be drawn from their occurrence.

II. Of the *Circulatory System*.—Syncope, the cessation of action of the heart—palpitation, its convulsive action. The pulse, defined as the tactual impression made by the impetus of the current of blood through an artery of notable calibre, is constituted and modified by the following elements. 1. The composition of the circulating fluid. 2. The condition of the great central organ, the heart. 3. The condition of the circumferential organs of circulation—the capillary systems, general and pulmonic. 4. The condition of the sensorial centre. 5. The condition of the arterial tubes, as to tonicity, contractility. Diseased actions in other systems, affect more or less the circulatory.

The pulse of an infant newly born, beats about one hundred and forty strokes in a minute; declining from that time, the average adult pulse is about seventy to seventy-five.

In health the pulse is modified by a great variety of circumstances.

Idiosyncrasy.—In some persons it beats more than one hundred, in others not more than forty.

Sex.—The female pulse is somewhat more frequent than that of the male.

Stature.—In tall men it is less frequent, in dwarfs more so.

Muscular exertion makes it beat with greater rapidity. In sleep it is slower.

The passions and emotions add to its frequency, and perhaps its force.

Temperature.—Heat augments, cold (continued) diminishes its frequency.

Diurnal changes.—The pulse is usually somewhat more frequent in the evening.

These agents affect chiefly the frequency of the pulse in health.

The healthy pulse is *regular*—that is, the intervals between the strokes are precisely equal; it is *vigorous*—that is, it resists with determined opposition, the influence of force applied to compress it; it is *full*—that is, the artery is completely, but not unduly distended by its blood.

The systole of the heart occupies a given portion of time, contracting steadily without harshness or hurry.

A morbid pulse may readily be distinguished then by comparison.

It is more or less frequent than in health.

“ “ hard or resisting.

“ “ quick, (abrupt or jerking.)

“ “ full.

Irregular in interval.

“ force.

Intermittent, regularly or irregularly.

These comparative phrases address themselves to the judgment, convey a definite meaning, and are easily remembered and referred to.

These several morbid qualities of the pulse may be variously combined, so as to offer a great variety; the attempt to give fanciful names to which has introduced some disorder and confusion.

Plethora, in strict propriety, is always a relative term, implying a want of proportion between the quantity or the stimulating quality of the blood, and the tone of the heart and vessels. Hence it may be met with in weak and debilitated constitutions.

I doubt the possibility of an absolute or general hyperæmia or undue abundance of blood. Local hyperæmia, on the other hand, is one of the most common conditions of disease, being implied in all inflammations and congestions.

Anæmia—the deficiency of sound or nutritious blood, often results from hemorrhages, natural or artificial, and from disease. The fibrine and red globules would seem to be slowly supplied.

The blood undergoes many changes in disease. It becomes buffy or sizzly. This has been explained on the supposition that its coagulation

being slow, the red globules fall to the bottom, leaving the yellow lymph on the surface ; this explanation is easily shown to be unsatisfactory. Gulliver and Jones ascribe it to an increased aggregation of red particles. Hewson and Davis to attenuation of liquor sanguinis. Zimmerman to defect of globuline and undue amount of albumen and fibrine ; and Simon to increase of hæmatine.

It may indeed be affirmed that the blood is always altered in disease. The change is often traceable in the proportion of its constituents. The fibrine, increased in the phlegmasiæ, is lessened in quantity in fevers and in purpura.

The proportion of globules varies, being much lessened in chlorosis, protracted diarrhœa, intermittent fever, &c.

In renal affections and some other diseases urea is found in it. In jaundice it contains the coloring matter of the bile.

It becomes incoagulable from great fatigue ; in death also from lightning, and from a blow on the pit of the stomach. It is black in typhus ; attenuated and dissolved, as the phrase is, in scurvy ; loses its salts and serum in cholera.

Hæmorrhage—a symptom more alarming than dangerous in itself, occurs in opposite states of the system ; when active is less serious than if passive—in the former case may have some good effect as a mode of local depletion.

III. Of the *Respiratory System*.—In affections of this system *auscultation*, mediate and immediate, should never be neglected. The stethoscope should be familiar to every practitioner. Percussion also should be carefully made over the chest, and undue resonance or the want of it, noted. By collating the results of these modes of inquiry, the condition of the lung in every part may be ascertained with great precision. Dyspnœa, mere difficulty of breathing, belongs to many varied disorders. Orthopnœa, its intense degree, enforces the erect posture, and denotes the presence of fluid in the thoracic cavity or in the lung.

Cough, the most common symptom of pulmonary inflammation, is yet not always present as a token of that condition.

Expectoration of mucus, or of thin, bloody, offensive, ichorous serum, may take place in various states and stages of bronchial and pulmonic disease, giving occasion for very definite inferences ; purulent matter may either come from an abscess, from the circumference of a tubercle, or from the unbroken mucous surface.

IV. Of the *Sensorial System*.—Pain is the most general symptom of disease, the expressions indeed being almost synonymous. It usually but not uniformly denotes the principal locality of disorder. The degree of pain depends upon the general sensibility of the patient, and

upon the local sensibility of the part affected ; it is also modified both in kind and degree by the nature of the case, so that it bears no regular proportion to the danger of the attack. The loss of sensibility, whether local or general, must augur unfavorably.

Permanent dilatation of the pupil of the eye is untoward, as being probably occasioned by compression of the brain ; permanent contraction by meningeal inflammation. Insensibility to light, as evinced by a fixed state of the pupil, is also unfavorable. Hallucinations of various kinds, amounting to delirium and insanity, are more to be dreaded when low and gloomy than if cheerful or violent.

V. Of the *Motory System*.—Great muscular prostration is always to be dreaded. Relaxation of the various sphincters indicates a high degree of danger. Paralysis is still more unfortunate, whether of one half the body, transversely divided, paraplegia, usually affecting the lower limbs, or hemiplegia, which is confined to the right or left side, and both extremities. Trembling of the head, a common circumstance in the debility of old age ; of the hands and tongue, often from intemperance. Cramps or tonic contractions of particular muscles, result from many various irritations—are often connected with digestive disorder and uterine irritation. Convulsions and spasms, more common in childhood, derived from numerous causes ; in general more alarming than imminently dangerous.

Convulsion is an affection of the true spinal or excito-motory system of nerves. It is centric or eccentric, the former most dangerous generally. A striking exception is found in tetanus, which may be excited either centrically or eccentrically ; the former not very dangerous, the latter or traumatic tetanus is fatal in large proportion.

VI. Of the *Excretory System*.—It is very difficult to assign any rationale of the coldness and corrugation of the skin in ague, or the generation of so much cutaneous heat in certain fevers—most observable in scarlatina and yellow fever. Rush makes the remark, which is confirmed by my own experience, that a cool moist state of the skin in the disease last mentioned is indicative of great danger. Inordinate sweating was the principal circumstance noted in the ancient fatal epidemic called *sudor Anglicanus*, as supposed to affect almost exclusively the people of England. The perspiration undergoes changes of quality as well as of quantity, assuming a yellow or brownish hue, becoming acid and offensive in smell. The skin itself suffers changes of color, being yellow as in jaundice ; pale, white, and semi-transparent, as in dropsy ; orange, in yellow and bilious fevers, and hepatic disorders, and from intemperance ; and livid, mottled and spotted, in petechial fevers.

The urine was of old regarded with special attention, and the most precise indications of the state of the patient supposed to be drawn from the appearances presented by it. It becomes abundant and limpid in nervous diseases, as in hysteria and some headaches; scanty and high colored in fevers; loses its urea in diabetes, in one form of which it contains much sugar; deposits sediments of varying color, under circumstances more exactly defined now than formerly. Its amount is much diminished in dropsies—containing varying proportions of albumen, and becoming readily coagulable in many cases.

The knowledge of the condition of the urine has been much improved of late and rendered highly available in one diagnosis, prognosis and therapeutic, by the nice chemical analysis instituted. The microscope is used successfully to detect oxalate of lime when all ordinary tests fail to show it; we thus also discover the presence of blood corpuscles, and epithelial scales, &c. No scientific practitioner should neglect the close examination of the urine in both modes.

Strangury—unfavorable in the commencement of fevers, is favorable in their advanced stages, as some writers affirm.

Total suppression is declared by most to be a fatal symptom. I have however seen recoveries from it.

The alvine excretions offer important observations, in warm climates especially. They are much influenced by the state of the liver, as well as of the intestinal canal. Long continued impediment to the process of fæcification, or the remarkable stercoraceous change undergone by the ingesta, always denotes danger. Clay colored stools show torpor of the liver—vitiated secretions of bile tinge them dark green and make them offensive and acrimonious. They are black under some particular states of enteric disease, as in yellow fever, containing flocculi or granulæ of black color. In dysenteric irritation they are mucous, and bloody and sanious. A peculiar pink colored, highly offensive ichor shows instant danger, being occasioned usually by actual gangrene of some portion of the mucous membrane. This tissue may come away also in small flakes in the stools, or portions of fibrine or coagulable lymph are sometimes mistaken for it. In dysentery we meet also with scybala—these are sometimes described as lumps of hardened fæces, at others as consisting of caseous or of fatty matter.

The discharges in cholera are thin and flaky, resembling gruel or rice water. They have been called serous and albuminous, and affirmed to consist of the serum of the blood little changed. This is however denied.

In children the stools are often acid and green; at times watery and

colorless. Purulent matter may come away from the intestines, either when ulcerated or highly inflamed.

The countenance of the patient should be remarked, as expressive of his condition. Any obvious change is unfavorable. The countenance of malignant fever is always notable.

Trousseau observes the absence of tears in children to be a bad symptom.

In physiognomical diagnosis the rugæ of the visage are much dwelt on.

"*Risus sardonicus*" is described as a grim sarcastic smile, produced by involuntary contraction of the muscles of the lips and cheeks. The "Hippocratic countenance" consists in hollow sunken eye, pinched up nose, fallen temples, tense pale forehead, lividness of face; universally, as far as I have observed, the forerunner of death.

The *decubitus*, or posture in bed.—Inability to lie down is unfavorable—so is confinement on either side—lying on the back with the knees drawn up, and sliding to the most depending part of the bed, show great debility. Restlessness and jactitation are bad symptoms; it is worst of all when the patient expresses an anxious desire to move from bed to bed, and from one room to another.

Periodicity.—The tendency to periodical revolution is one of the most remarkable phenomena of disease.

It is of three kinds; the first refers to the influence of obvious agencies, as the return of day and night, the seasons with their coincident impressions, thermometric, barometric, hygrometric, which all observe regular intervals; the second is dependent on habit, which is partly voluntary and moral rather than physical; the third is an obscure characteristic quality of disease itself or of the cause of certain diseases. No form of disease perhaps can be found absolutely free from the influence of periodical movement.

Diurnal revolutions are observable both in health and disease, as may be noted in the pulse, and in general in all our habits and customs. They are likewise obvious in all fevers—continued, remittent, and intermittent. Continued fevers show some abatement in the morning and augmentation in the evening. Remittents refer to the types of intermittent, with which they are most closely connected. Intermittents have their special hours of access; the quotidian in the morning, the tertian a little before noon, the quartan in the afternoon.

Septenary revolutions are not less clearly distinguishable. The menstruation of the human female occurs regularly on the twenty-eighth day—its anticipations and postponements are usually of seven

or fourteen days. The relapses of fever occur at the same periods very generally.

The first are attributed to insolation, the influence of the sun; the second in like manner to lunation, the influence of the moon.

The combined influence of the two, liable perhaps to other complications more obscure in their nature, will account for all the types of fever, as well as of crisis, or the agency of critical days.

Certain diseases seem to possess an inherent or independent periodicity, arising from some characteristic peculiarity in their own nature. These are called self-limiting; they can neither be arrested in their course nor prolonged by any means known in our art. The exanthemata present the best examples of this order. Small pox, vaccine and scarlatina run through a definite course and terminate after a certain duration. The consequences or sequelæ of these diseases, however, depending on lesions of the organs affected in their progress, may be indefinitely protracted.

The true test of a self-limiting disease is its *spontaneous subsidence* at a determinate and calculable period. Some have confounded illimitable or uncontrollable maladies with the self-limiting. The distinction is easy. We may protract an attack of typhus or of pertussis by mismanagement; we cannot add an hour to the duration of measles or small pox, though we may render them more violent and even fatal.

The condition of *convalescence* may be briefly described as one of extreme mobility and susceptibility, modified by the contingencies of the preceding disease in a great diversity of modes, and requiring the special notice and attention of the practitioner.

MODUS OPERANDI OF MEDICINES.—It is truly curious to observe that as all the means of life may become incidentally causes of disease, so most poisons may be employed as medicines or remedies for disease. All known drugs are revolting and injurious; they all disorder the sound or healthy system; how then do they effect in the sick the restoration of health? Our best medicines are drawn from the class of vegetable and mineral poisons, as opium and mercury, antimony, digitalis, &c.

There is no such power existing in any known agent as shall be displayed in the mere production or increase of vitality or healthy action in an animal body; nor is there anything in nature properly deserving the title of antidote, except in reference to its chemical affinities. Medicaments must therefore be useful by an indirect agency, their effect being always modified by and dependent upon the condition of the recipient.

Therapeutical agents may be arranged under several heads in relation to the mode in which they affect or impress the subject, as follows:

1. *Abstraction*.—Darkness, silence, fasting, recumbent posture, cold, the lancet, leeches and cups, cathartics, diuretics, &c.

2. *Stimulation*.—Wine, alcohol, bark, opium, electricity, heat, &c.

3. *Revulsion*.—The most important perhaps of therapeutical principles. The use of cathartics in fever, of these and emetics in inflammation; of the lancet, leeches and cups, (as properly under this head as the first) of sinapisms, blisters, acupuncture, &c.

4. *The homœopathic action*, as exemplified in the application of belladonna in scarlatina; of vaccine, to prevent or modify small pox; of emetics to prevent nausea, and of cathartics to cure diarrhœa. Yet homœopaths reject altogether and protest against the doses ordinarily employed by the other schools, and exult in the alleged discovery that the most beneficent effects can be procured from atoms, or indefinitely minute portions of medicine; exhibiting the thousandth part of a grain, or of a drop of our common drugs.

5. *The contra-stimulant influence*—exhibited best perhaps in the use of chloroform and of very large doses of opium in tetanus, and of antimonials in intestinal spasm. The Italians of the contra-stimulant school, are found in the opposite extreme to the German practice of Hahnemann. They administer boldly the most enormous quantities of the remedies indicated, with the purpose of combating directly the force of morbid impressions made upon, or morbid action going on in the system.

This is allopathy carried to ultraism. Nothing however can be more rational than the principle of counteracting by direct influences the specific effect of disease or its cause upon the organism, and of duly adapting the force to be exerted by the counter-agent to that of the morbid poison, either by amount of dose or concentration of specific power. Allopathists generally prefer to this heroic practice a system of more cautious and moderate medication, in which the same results are aimed at by repetition and accumulation of contrasted impressions—*non vi sed sæpe cadendo*. The true eclectic avails himself of each of these modes with discrimination.

It is an interesting inquiry whether in our administration of medicines we essay to act on the cause of disease antidotally, or on the effects of that cause, arresting, removing, remedying them, and restoring organs and parts to their normal condition. Perhaps in both modes, but I think chiefly in the latter.

Thus carbonate of lead excites rachialgia, which we attempt to put an end to by the exhibition of sulphuric acid. This acts *antidotally*,

by forming the insoluble sulphate of lead. When lithic acid abounds in the urine, we administer alkalies.

So malaria, a fungus hypothetically, is conjectured to be destroyed by antifungous agents ; quinine, bebeerine, &c.

On the other hand, alcohol used in excess creates a morbid irritability, which is subdued by opium and digitalis ; and strychnine hyperpolarizes the spinal cord, exciting spasm—which belladonna and ether relieve by depolarizing the same organ. Hence we are led to employ strychnine in paralysis, and ether and chloroform in cramps.

6. *The alterative influence*, such as we attribute to mercury, and the metallic preparations generally, to the mineral acids also, and indeed such as may be obtained from a great number of medicines, as guaiac, iodine, camphor, cathartics. By the word alterative, I would mean the substitution of the effect of the medicine for the effect of the originally acting cause. To be regarded as an alterative, a medicine must be capable of producing then a forcible impression, which may be kept up at will by its continued exhibition, and which shall readily subside on withholding it. By the combination of these powers, its value is given.

It is doubtful whether the three last modes of action may not with propriety be all resolved into revulsion, or included under that head.

The modes of administration by which we apply our ordinary remedies, are four, viz. 1st. By the primæ viæ or surface of the alimentary canal. 2d. By the cutaneous surface. 3d. By the pulmonary surface. 4th. By introduction into a vein, or insertion into a wound.

There are besides these, some mechanical, and in a certain sense, chemical remedies, not directly referable to either of the above heads, as friction, percussion, acupuncture, electricity and galvanism.

Medicaments may act when applied in either of the above modes.—1st. Upon the extremities of the nerves immediately, and through the sensorial system upon the whole body.—2d. By introduction into the circulation and actual mixture with the mass of fluids.

Instances of the first kind may be found in the *instantaneous* death which follows the swallowing a large quantity of alcohol—the same result is produced by touching the eye or tongue of an animal with strong prussic acid—and in the effects of stimulating volatiles upon the body through the olfactory nerves.

The latter, I believe, is common in the agency of our ordinary medicines. The effects of medicine introduced into the stomach, are exactly similar or identical with those which they produce when ejected into a vein. Opium dissolved and thrown into a vein, produces sleep and stupor ; ipecacuanha vomiting ; jalap and castor oil purging ; and

arsenic more readily brings on gastric inflammation when inserted into a wound, than when swallowed.

It is only on these tissues or systems, the vascular and sensorial, that medicine can act primarily. They affect the first by actual admixture with the circulatory fluids. They affect the sensorial system by a direct impulse or impression upon the extremities of the nerves, which we do not understand, and cannot describe. They are separable then fairly into two classes, as they affect one or the other of these systems.

Friction, percussion, acupuncture, act upon the nerves directly subjected to their influence. These they irritate, vascular determination ensues, (*ubi irritatio ibi fluxus*) and thus they prove remedial on the principle of revulsion. Acupuncture is maintained by many theorists to owe its efficacy to electric impression. Electricity and galvanism seem to exert as pervasive an influence over living, as upon inanimate matter, and act with wonderful force upon all the solids and fluids of the living body. They are impressive agents of high value and general adaptation.

The operation of each and every medicament, is specifically directed upon some particular organ of the body. Besides this specific operation, which it has a tendency to produce under all circumstances, there are other influences which may be derived from it, depending either upon the quantity employed, or upon the condition of the recipient.

1st. *The direct or specific operation of medicines* we see in the emesis from tartrate of antimony and ipecac; in the sleep and stupor from opium, in the dilatation of the pupil from belladonna, &c. We may even point out more minutely distinctions as to the modes of effect, when their action is upon the same organ; thus ergot causes the uterus to contract, affecting its fibrous structure; guaiac acts upon the secretory vessels, causing them to pour out their due fluids. Cathartics act variously upon the bowels.

This relevancy which constitutes the principal basis of the therapeutical employment of medicine, can only be known, empirically, by observation and experience. There is nothing in the physical qualities or elementary composition of any agent, that indicates its probable influence upon the animal economy. Bebeerine and morphine offer the same constituents to minute chemical analysis, but the first acts like quinine and is not hypnotic at all.

The mode of impression of any drug will depend upon its specific qualities and the specific sensibilities of the organ or tissue on which it is adapted to act—neither of which can be known but by experiment.

The *accidental* discovery of these modes of impression can only be expected to occur to the prepared and attentive observer; zeal and ingenuity may hope to profit by suggestions derived from attentive observation.

2d. *The indirect or consecutive.*—These may, or may not include

3d. *The poisonous.*

Among the *indirect* effects of medicines, those namely which depend on dose and condition of subject, we may mention the emetic effects of castor oil, of calomel—catharsis from the latter, diaphoresis from antimonials.

In regard to the effects of medicines, one important observation should be kept in mind by every practitioner; that certain of the most powerful and valuable articles of the *materia medica* are *accumulative* in their operation, and thus become dangerous. Thus mercurials shall sometimes, when administered in repeated doses, seem inactive, exhibiting no obvious effects, until at once we have ptyalism, ulceration of the lining membrane of the mouth, and caries of the teeth; the system having become, as it were, slowly saturated with it. Thus it is with arsenic, and thus also among others with digitalis. The first shall be given in vain, as it might appear for some days, when on a sudden there will be pain and disorder of the stomach, with great prostration, and swelling of the face and eyelids.

Digitalis will, at times, act neither as diuretic, nor in any other way, until, its administration being persevered in, vertigo comes on, dim vision, intermittent pulse, palpitation, and perhaps coma and convulsions.

SPECIAL PATHOLOGY

AND

THERAPEUTICS.

Some classification and arrangement are essentially necessary to assist the progress of learners in all sciences.

I prefer to all others the *Physiological Nosology*, which distinguishes the tribes of disease, according to the seats which they occupy,—the functions which they disturb or impede.

I shall treat of them as they affect—

- I. The Circulatory organs and their functions.
- II. The Digestive.
- III. The Respiratory.
- IV. The Sensorial. This class nearly coincides with the “*Neurosés*” of Cullen, Parr, &c.
- V. The Motory, comprising the diseases of bones, joints, muscles, tendons, ligaments.
- VI. The Generative.
- VII. The Excretory, comprehending the cutaneous affections, those of the urinary organs, and the local diseases of the large intestines.

Before attempting the cure of a disease, it is necessary that we should carefully distinguish it from every other; the *diagnosis*, then, of every case, must be considered separately in this relation.

Special Pathology implies the absolute individualization of each instance of disease; for it is impossible that any two examples should be exactly alike, or any two patients be found in precisely the same morbid condition. The *indications of treatment* cannot therefore be precisely the same; some modification appropriate to each will be demanded.

Therapeutics comprise the whole management of an attack of disease; the regimen, the physical and moral control, nursing, &c., as well as the administration of medicines. Indeed this general management is often of far more importance than the mere pharmaceutical applications. Voltaire’s definition of the practice of physic as “the art of pouring

drugs of which we know little, into a body of which we know less," is an unjust reproach if applied to the modern scientific physician, of whom prudence is the special attribute, (*nullum numen abest, si sit prudentia*,) and who believes with Chomel, and acts upon that belief that "the first duty of the practitioner is to take care that he does his patient no injury in his efforts to benefit him."

The diseases of the CIRCULATORY SYSTEM are of paramount importance, and require our earliest attention. Among them are to be found many of the most fatal maladies that assail our race; and the two most frequent of all known morbid conditions, inflammation and fever, are arranged here. Indeed they are so mingled and combined with the large mass of human diseases, that it would not be improper to affirm that few of them are susceptible of satisfactory discussion, without a previous inquiry into these very extensive and important subjects. INFLAMMATION, which either as cause or effect, as coincident or consequence, is so generally combined with the principal forms of disease, is entitled to our immediate notice.

Its seat I suppose to be in the capillary system—the nutrient and secretory arteries, the vasa vasorum. Its nature is unknown. There has been much useless argument to establish the uniform and essential contingency of the *increase* or *diminution* of excitement and action, in inflammation. It does not depend upon, nor consist in, degree of action; yet it would seem, that there is always, at least in the first instance, increased action. The smaller vessels, like the heart, are endowed with the capacity of active dilatation. We cannot otherwise account for the phenomena; for it is absurd to suppose the heart, or larger vessels, capable of elective propulsion or determination of blood to any particular part of the body. The minute vessels then expand in the production of inflammation, as they do in blushing, redness from friction and stimulants; but there is some superadded essential condition, or blushing would be inflammation.

"*Determination of Blood*" admits of explanation in three modes. The first I will call passive or revulsive, as being the effect of causes acting upon some distant part; as where blood expelled from the surface by cold, &c. is driven upon the internal viscera, whose vessels are thus distended. The second exists where the arteries supplying a part, becoming rigid by the undue excitement of their contractile force, give the current passing through them, as Arnott points out, an increased impulse. A leaden tube requires less vis a tergo to conduct a stream of fluid to a given point than a leather one; and with the same will send

it farther or more forcibly. In the third, the part itself, the tissue or organ may assume or be impressed with greater affinity—chemical or vital, or chemico-vital—for the blood, and may solicit, or become capable of receiving, either to transmit or to retain, a greater quantity.

There are two conditions or states of a part, which precede or give rise to inflammation. The most common is *Irritation*—a term difficult to define. It is usually employed to express excitement of the nerves of a part either normally or morbidly; but we are not sure that the irritability of the tissues is absolutely dependent on their nervous connections. Many of the most familiar modes of irritation produce muscular contraction—spasm, convulsion, not inflammation. They are the sources of reflex actions, the final cause of which is obvious, such as sneezing, coughing, &c.; and of others whose purpose is unknown, as irrepressible laughter from tickling, and hiccup from various modes of irritation of the stomach, chiefly. Irritation of glands and vascular tissues produces a fluxus or hypercæmia, which if protracted or excessive, gives rise to inflammation.

The second is *CONGESTION*—where there has been, from whatever cause, an undue proportion of the sanguineous fluid forced into the structure of any organ thus engorged, or unnaturally distended—as in the liver, spleen, and other internal viscera, from the concussions of intermittent fever, or the shock of cold applied to the surface.

Such congestion is mechanical, passive, revulsive, venous, capillary; not attended with local change in the tissues affected, nor in the fluids collected in the part. Indeed, congestion seems to be sometimes the effect of a vascular paralysis; the vessels of the surface chiefly affected and of the lungs, admitting no circulation, the necessary vital changes of blood and tissues are suspended. Hence the danger and mortality of many forms of disease of which this is a prominent element—as of cholera asphyxia, and of congestive remittents and intermittents.

It is almost superfluous to remark, however, that neither of these is of necessity followed by inflammation. The internal organ may discharge itself and return to a natural condition; the irritated part may be soothed into tranquility without any exhibition of vascular excitement; or this may be so temporary and transient as not to deserve the name of inflammation. The redness from slight friction on the surface, or from acupuncture, is not inflammatory, any more than the vascular excitement of the whole system from wine or exercise, is properly fever.

Hypercæmia—sanguineous congestion or determination of blood, shows itself in many modes. It is normal and active, as in the swelling of erectile tissues, blushing, redness from friction and the like,

weeping from mental emotion, salivation from sapid substances, &c. It is the passive effect often of repulsion of blood from distant parts, usually a venous hyperæmia; a mere stagnation or little else, and unproductive of change or hypertrophy. Inflammation is an *active hyperæmia*, in which the minute, nutritive, arterial tissue is concerned, with *tendency to new production*.

All inflammation is in nature *morbid*, as we know both from the symptoms and the results. Surgeons recognize a healthy inflammation, but the phrase is rude and unscientific. Union of opposite surfaces, by the organization of effused lymph or fibrine, is made incidentally useful in surgical operations, as for the cure of hydrocele, artificial anus, &c.; but can no more be called healthy inflammation, than that which unites the pleura costalis with the pleura pulmonalis; indeed, they are absolutely identical. Union by the first intention, has been attributed to inflammation, but incorrectly. The vessels of divided surfaces are placed in apposition, so that circulation goes on, and restoration is effected by the deposit of nutritious matter from the vessels. A finger or piece of flesh *cut off* and replaced, sometimes adheres. But in this case *union must precede inflammation*, or only one surface can inflame. Indeed, inflammation impedes the occurrence of union by first intention. It occurs always to a certain extent no doubt, but merely as a coincident effect of the violence applied to a living body.

The local changes in inflammation are minutely described by many microscopists. Addison states that "the accumulation of the colorless cells of the blood in irritated and inflamed textures is an established fact," the globules move irregularly, slowly, oscillate to and fro, become stationary, and actually retrograde very often. Houston, having remarked upon the comparatively slow motion of the white globules in the healthy circulation, which, as he says, "lag slowly on, stealing along the sides of the vessels, while the smaller red ones glide easily in the centre of the stream," goes on in these words: "Under inflammation, this tendency to linger is increased. The white globules accumulate in the capillaries and stop up the stream, so that the mass of blood actually stagnates there; hence the rubor, tumor, calor, dolor. Whether this stoppage is mechanical, or from want of tone in the blood-vessels, or from increased disposition to attraction between them and the globules, is doubtful."

The general symptoms of inflammation are the same, whether its seat be internal or external—pain, redness, swelling, heat, throbbing. The pain differs in kind and degree, according to the structure of the part affected, its sensibility, and the general sensibility of the patient. It is in proportion to the suddenness and extent of the changes which take

place, being of course greater in acute than chronic cases. It results, probably, from the excitement of the minute vessels, which by their dilatation, produce tension and pressure on the nerves.

Inflammation may be too hastily inferred to be present. The phenomena are simulated in some neurotic affections: extremes meet in the results of anæmia and hypercæmia—as in ulceration. This, frequently an effect of inflammation, also follows starvation, as in Magendie's experiments. May not the ulceration of Peyer's plates in typhus, be entirely independent of inflammation—the result of atrophy or of the presence of typhoid matter deposited. Pain is very intense in mere neuralgia. Throbbing also, as in headaches, &c. Heat, the greatest known to be developed in the human body, is physiological, in parturition; stated by Granville at 120. In some diseases not inflammatory, apoplexy, for example, and in some congestive malignant fevers, the morbid heat runs very high.

The *primary essential element*—what is it? Perhaps we may find it in some change of relation between the tissues and the blood by which they are supplied: in local inflammation, the change being in the tissue or part; in general inflammatory affections, being in the blood (as in erysipelas, &c.) The tissues everywhere must be endowed with specific properties and powers for the performance of specified functions, to secrete, excrete, deposite. The relation referred to is chemico-vital. Beyond a certain limit consistent with health, it must then be disturbed both by changes of innervation and of composition of the fluids.

The *redness* and *swelling* are easily accounted for by reference to the vascular fullness and determination which exist. The *heat* of the part is somewhat heightened, as depending on the vascularity of the part, and the force and fullness of local circulation. It can scarcely be higher than the heat of the interior of the body, and is most notably increased at the farthest point from the heart. Throbbing results from the admission of a forcible current, impelled by the heart into vessels which were before too small to admit of such impulse, or which have spontaneously dilated to receive it.

The *local effects* of inflammation are modified by the structure of the part in which it occurs, and by the nature of the cause which has produced it. In illustration of the first, we may refer to what are called the terminations of inflammation of the serous tissue; these are most commonly adhesion and dropsy, sometimes purulent effusion—rarely ulceration. In inflammation of the mucous tissue, we have very commonly purulent secretion and ulceration—rarely adhesion, &c. In the skin, vesication and phlegmon; in parenchymatous masses, abscess, and schirrhous. The modifications from cause, are still more marked

and precise. In certain predispositions we have arthritis, cancer, &c.—each peculiar. From certain morbid agents, we have specific modes of inflammation, as upon the application of arsenic, tartrate of antimony, lytta, &c. Sphacelation seems to be determined for the most part by the *intensity* of the morbid excitement, rather than the nature of the *cause*. It may be defined as a species of disorganization, of which death is a necessary consequence. Disorganizations are effected (as in scrofulous and schirrhous degeneration) without depriving the part of its vitality, and death may occur without disorganization. Sphacelus implies a union of the two circumstances.

Inflammation produces certain notable changes in the fluids. 1. Hyperfibrination of the blood, of which we know not whether to pronounce it cause or effect, or how to account for it. 2. Buffiness or siziness, already spoken of, and 3. The formation of pus. This is a new production. Simon describes pus corpuscles, often found mingled with the blood, as well as effused on surfaces and collected in abscesses, to be half as large again as blood corpuscles; of a pale grey color; their edge is granular or tuberculated; their shape is round or oblong; they are slightly granular in the interior; indicating from 3 to 5 nuclei.

Pus-cells contain all the specific principles or characteristic properties, contagion, &c. of the disease by which they are produced; as in small pox, vaccine, gonorrhœa, syphilis, &c.

Inflammation may or may not be attended with the excitement of *general febrile disorder*. After wounds and injuries, especially in vitiated constitutions, and at an interval undetermined and varying, fever is apt to come on with shivering or without it, the skin becoming hot and dry, the pulse hard, frequent and quick, the face flushed, and the eyes red, with headache and perhaps delirium. This is one of the types of symptomatic fever, assuming a continued form, that is, without intermission or regular and definite remission; it is closely analogous to, if not identical with, the febrile derangement, connected with the long list of internal inflammatory diseases, hence called pyretic, as pleurisy, gastritis, &c. In these latter, the fever supervenes usually with great promptness soon after the invasion of the disease. Hectic, the second of the types of symptomatic fever, is intermittent, and attends protracted inflammation, both internal and external. It shall receive special notice hereafter.

It has been suggested that these forms of fever are excited by the changes in the blood dependent on inflammation, the excess of fibrine in the continued or early symptomatic fever, and the presence of pus in hectic fever. The question merits inquiry. We should not omit

to remark the striking difference between idiopathic and symptomatic fevers, in the fact that blood is always defibrinated in the former.

In the general treatment of inflammation, we refer to *three* modes of remedial management.

1. By abstraction of excitement, venesection, leeches, cold, low diet, purgatives, emetics, nauseants, &c.

It is under this head chiefly, that I would include the agency of *opium* as a remedy for inflammation. The first step in the lighting up of inflammatory disease is often a mere irritation, which is capable of being entirely subdued by the anodyne and soothing influences of this most valuable drug. In its farther progress, too, inflammation is liable to be aggravated by pain, which is the result of morbid excitement of the nerves of a part; and this can often be allayed promptly and entirely by opiates. The state of sleep which they so admirably induce, is singularly adapted to promote the subsidence of all undue actions of any of the organs, and especially of the brain, whose agitation readily disorders every fibre of the system, and whose restored tranquillity is so often the harbinger of general repose.

From opium also we may obtain, by proper management of its indirect operations, very great benefit as a diaphoretic, and as a most impressive stimulant; but these effects are referred to under the following heads:

2. Revulsion, as by venesection; purgatives, diaphoretics, stimulants, sinapisms, epispastics, &c.

3. By alterative influence, as in the mercurial treatment, and in the substitution of a new and transient form of inflammation, as when we apply a blister to erysipelatous surfaces, arsenic to a cancerous ulcer, and stimulants generally to indolent ulcers and chronic inflammations. In strict propriety, these are but modes of revulsive affection.

· **FEVER.**—The phenomena of fever prove the co-existence of two prominent conditions in both the vascular and sensorial systems. There is evident concurrence in each of

1. Diminished energy—defective power, with
2. Undue action—morbid excitement.

This latter expression implies that with the diminution of the amount of power, there is irregular distribution of the remaining power.

The combination of these elements, perhaps in varying proportion in different cases, forms the *proximate cause of fever*.

It is probable that the earliest disturbance occurs in the extreme ves-

sels, the nutrient, and secretory, and excretory, denominated the capillary system.

It is also probable that in most fevers this disturbance arises from the entrance into and admixture with the blood of some morbid matter or poison, as in the contagious and malarial.

We infer that the general *modus operandi* of such poisons is sedative or depressing. It cannot be denied, however, that in some cases, nay, perhaps classes of cases, they appear to be rather stimulant and irritative, but such instances it may be observed constitute, after all, mere exceptions to the general rule; no disease being so liable as fever, to be modified both by the condition of the individual whom it affects, and the circumstances which may attend its production and spread.

In the study of fevers we are at first struck more forcibly with the differences than the points of similarity between them. We are apt to think, *as Andral said of Inflammation*—that the word is too wide and covers too many conditions. Compare a habitual intermittent with a malignant typhus—congestive remittent or yellow fever. Yet there are always present the same elements, whose varying predominance may be said to separate fevers into two general classes—the neurotic and the humoral. The first, *neurotic*, are those in which irritation is the principal feature, productive of and connected with congestion, inflammation and hæmatic change. The second, those in which *hæmatic* change is primary and predominant, productive of course of irritation, congestion and inflammation; when strongly pronounced we call these latter *malignant* fevers.

The *causes* differ relevantly. Among the first we find what are usually termed inflammatory fevers, arising from incidental causes of all kinds; the latter are the effects of specific poisons, contagion especially. The doses of these poisons as well as their special qualities modify or affect the results produced, as when malaria diluted, gives rise to intermittent; concentrated to malignant remittent. There is some analogy in the observed influence of alcohol, which in small amount exhilarates, intoxicates when largely taken, and in sufficient quantity proves instantly fatal.

Entering the blood through the skin and lungs, they act upon the internal surfaces of the minute vessels, specifically affecting special organs. Separate tissues are disordered in various types, as the stomach in yellow fever, the intestinal glands in typhoid, &c.

Fevers are properly divided into Idiopathic and Symptomatic. The distinction intended, is generally recognized in marked cases, as when we refer on the one hand to fever from local injury, succeeded by inflammation, and on the other, to the regular recurrence of an habitual

quartan. The best definition perhaps, which can be offered, is that which connects symptomatic fever essentially with some *obvious, regular* and *early local inflammation*; idiopathic fevers being such as do not show uniformly such connection. The latter head will then comprise intermittents, with the exception of hectic; remittents generally, and among the continued fevers, typhus, catarrhal fever and pneumonia typhoides. Examples of the true symptomatic fever, are given in pleuritis, hepatitis, phrenitis, gastritis, enteritis; the inflammatory fever which occurs immediately after a severe injury, and the irritative or hectic, which comes on later.

It has been much disputed, whether the first step in the formation of fever is the production of debility, or of irritation. The true nature of *incipient* febrile action is unknown. Many of the *remote causes* of fever, it is true, are of a stimulant, or irritating, or exciting quality, but not all. Typhus, the "*famine fever*" of Ireland, is the result of agents of opposite tendency, and large losses of blood are very apt to be followed by fever.

Cullen's definition of fever is not correctly precise. Fevers do not always *begin* with a *cold stage*. When they have so commenced, the animal heat of the surface is not always *augmented*. The *frequency* of the pulse is sometimes *diminished*.

Fever is difficult to define because of the number of concurrent elements which go to constitute it. Lassitude, one of the most uniform incipient symptoms, shows early affection of the cerebro-spinal system; the disturbance of the circulation seems to consist primarily of obstruction in the smaller vessels, perhaps from capillary paralysis, and reactive vehemence in the central organ. From or with the capillary paralysis ensue defective generation of animal heat on the surface and in the tissues; chill and rigor; cold and muscular trembling; from the same cause universal derangement of nutritive, secretory and excretory action.

Nothing is more strongly characteristic of fever, than the general *diminution* and *depravation* of the *secretions* of all the surfaces and glands; hence the thirst, the clammy mouth, the furred tongue, nauseated stomach, constipated bowels, harsh dry skin, paucity of urine, which is highly colored, &c.

The blood always undergoes more or less change in fevers. It is asserted to be always defibrinated in the idiopathic forms. Hence perhaps the tendency to hemorrhage in the latter stages of severe fevers.

The ancient notion of the tendency of fever to run a certain course and *subside spontaneously*, is fallacious and must not be depended on.

The congestions and inflammatory determinations which belong to the history of fever, tend on the contrary to the production of organic changes in the tissues, which, reacting, keep up fever, and prostrate the constitution. Hence, as these irritations, congestions and inflammations are at least in a certain measure controllable by proper remedies, we must class fever among curable diseases. Not only in this way, indeed, is it removed, but we occasionally see it cut short by impressive measures, which relieve the system of it suddenly and at once, as venesection, the cold bath, emetics, cathartics, mercurials, &c. The perturbing methods of treatment are therefore preferable in their general results to the *expectant* management of fever.

The doctrine of *critical days* requires notice. Crisis is defined as a sudden and notable change, occurring spontaneously in the course of fever, and exhibiting a remarkable influence on its character and termination. The change may be either favorable or otherwise.

Crises occur probably in all acute diseases. They may consist in mere revulsive determinations to some new part or organ relieving those first attacked; we may thus explain the alleged critical influence of epistaxis however trifling, the external vessels receiving the fluxus which had oppressed or irritated the brain. There are obvious critical changes, exhibited in the urine and perspiration, much dwelt on recently, as in ancient times.

The question is, whether these changes are to be expected on certain calculable days. These days, if we collate the writings of the principal and most zealous supporters of the doctrine, are the 3d, 4th, 5th, 6th, 7th, 9th, 11th, 13th, 14th, 15th, 17th, 20th, and 21st—thirteen days in twenty-one; the non-critical days are the 8th, 10th, 12th, 16th, 18th, and 19th—six in number. We cannot wonder then, if, as is asserted, a majority of crises do occur on the so-called critical days. The regular observance of the types of fevers, all which refer originally to the intermittent form, however obscurely, I think, has been the cause of the belief in critical days.

The diurnal and septenary revolutions have been spoken of; to the combined influence of these I attribute the types of fever. *Continued* fevers usually have reference to the quotidian intermittent; *remittents* to the tertian, with its modifications, double and triple, and perhaps sometimes to the quartan. Remittents, when they become *obscurely remittent* by protraction, running, as the phrase is, into a continued type, exhibit in a still indistinct way, this reference to intermittent type, and these imperfectly marked references have been called *crises*.

The remote causes of fever shall be enumerated under each specific head.

The *effects* of fever, the local derangements developed during its progress, and displayed in post-mortem examinations, vary both with predisposition and exciting causes.

The brain, in its substance and upon the membranes which envelope it, shows vascular engorgement, and sometimes the results of inflammation.

The mucous membrane of the stomach and intestines, suffers various lesions from similar inflammatory determination, and other modes of derangement.

The pleura and peritoneum are also attacked—the lungs and the mucous lining of the trachea. The liver, especially in warm climates, is often notably altered in color and appearance, being increased in size, in weight, &c.

These local affections are not necessarily inflammatory; they are congestive, perhaps, as often.

In Crampton's account of a Dublin epidemic, the following estimate is given, of the relative proportion in which the organs were altered in condition, or had undergone notable lesion. Out of 755 cases, 76 were of the abdominal viscera, 129 of the chest, 550 of the head. Similar tables are presented us by Tweedie and other British physicians. Among us, owing to influences of climate and determinations thereby given, the proportions would be reversed. Here the abdominal viscera are chiefly affected, (the stomach, intestines and liver,) next the head, lastly the chest. I believe the former never escape derangement in the warm months.

Fevers divided into *Intermittent*, *Remittent*, and *Continued*. These types are fairly distinguishable, although there are cases in which the distinctive marks are very slight.

The *cause* of the difference of *type* in fevers, is not known. It would seem to depend upon the nature of the morbid poison which gives rise to the disease, and which indeed impresses the whole train of results. Malaria produces intermittents, and remittents; contagion, a continuous fever.

The period of *incubation* appears universally determined by the efficiency of applied cause, and this is the combined result of amount or concentration of dose and predisposition of subject. This *latent period* is therefore very various.

The *intercurrent period* is, on the other hand, very exact; depending simply on one element—the type of the disease.

An *intermittent* presents repeated paroxysms of fever, with intervals between of absence or *apyrexia*.

A *remittent* is characterized by *notable* and *regular* exacerbations,

and *diminutions* of febrile excitement, there being no complete apyrexia, but an observable approach to that state.

A *continued* fever is so denominated when there is no notable or prominent difference at regular periods in the degree of febrile intensity. The influence of diurnal revolution, is however generally observable, there being slight morning remissions, and evening exacerbations.

INTERMITTENTS are divided into three *stages*—the cold, the hot, and the sweating. The whole time from the commencement of the cold stage of one paroxysm, to the commencement of another, including the apyrexia, is technically styled *the period* of an intermittent.

1. The quotidian occupies 24 hours in this way, returning daily.
2. The tertian 48, returning every second day.
3. The quartan 72, returning every third day.

Each of these has its usual hour of access, and its relative duration and violence of stages. The quotidian comes on in the morning, has the shortest cold stage, but the longest exacerbation of febrile excitement, continuing about eighteen hours ; its apyrectic interval about six.

The tertian comes on at or a little before noon ; its duration is about twelve hours ; its interval is long.

The quartan attacks in the afternoon, with the longest cold stage has the shortest duration ; continuing seldom more than nine hours.

These are the original types, which are variously complicated ; we have the *double tertian*, the attacks on alternate days corresponding in time of access, violence, duration, &c. ; the *triple tertian*, two paroxysms on one day, and one on the alternate ; the *double quartan* and the *triple quartan* are also mentioned.

The *paroxysm of an intermittent* described. The *cold stage* is marked by the following symptoms—languor, muscular feebleness, yawning, stretching, sighing, paleness of the face, with lividity of the lips and ends of the fingers, shrunken countenance with cutis anserina, a sense of chilliness increasing to trembling and shiverings of the whole body ; uneasiness at stomach, amounting to nausea sometimes, and vomiting ; pain in the head, and over the back and limbs ; pulse small, and feeble, and quick.

Hot stage.—The chills alternate with flushes of heat, gradually pervading the whole surface, which is glowing and dry ; pains in the head and limbs increase, with turgidness of the face and eyes ; vomiting goes on, and bilious matter is thrown up mixed with mucus and other contents of the stomach ; there is thirst, and the pulse has become frequent, full, and hard.

Some intermittents do not present the stage of ague or chill, but commence with the hot stage.

Other irregularities are noted in the books, such as inversion of the three stages, &c. ; but these are very rare, if indeed they ever occur.

Sweating stage.—After some time a moisture is felt upon the forehead, breast, and arms, which progressively extends over the whole body, and the sweat flowing freely, the symptoms above enumerated go off, leaving the patient more or less exhausted.

Masked or disguised intermittents present, instead of the above regular succession of phenomena, some single symptom of great intensity, occasioned by morbid determination to, or affection of some part, as of the eye, the stomach, the brain, &c. We distinguish these by their periodical recurrence and regular abatement, and the previous exposure of the subject to the causes of intermittents. As to the nature of these "masked cases," (so called,) I entertain some doubt, however. Periodicity is so frequent an attribute of disease, that we need not refer it to any supposed connection with intermittent fever or its causes.

Causes of intermittents.—Malaria is the principal, if not the exclusive cause of these fevers. They are said also to arise from alternations of temperature, moist clothing, fatigue, &c. ; but such instances are very seldom if ever met with.

The latent period may be so long protracted as to give rise to error here. The attack may be developed days, weeks, or even months after exposure to the malarious atmosphere. A table is given us by Dr. Halpin, of 14 men from Cavan, Ireland, exposed harvesting in the fens of Lincolnshire, but 3 of whom escaped. Only one of 11 was seized within a month after exposure—7 were attacked six months and one about a year after their return home.

General prognosis.—Favorable, allowance being made for their obstinate tendency to recur, the season of the year—vernal being more easily curable than autumnal attacks—and climate. In hot and moist countries, as on the coast of Africa, intermittents put on often a malignant and fatal character ; and in very damp districts of more northern latitudes, as in Holland and England, (Lincolnshire,) though less immediately destructive, they are tenacious and sometimes fatal.

Few diseases engraft themselves so tenaciously on the system, or generate so strong a disposition to their own return. Relapses are apt to happen at intervals relevant to the intercurrent period of the original type. They take place frequently on the approach of warm weather, although the whole winter has passed without a paroxysm, and the subject may have removed from the unhealthy district. This is

vaguely ascribed to habit merely, but although this may sometimes keep up the disease, yet I think we must attribute its return after long vacant periods to some morbid condition of the organs and tissues which suffer during the attack, reacting and reproducing the general disorder with which it is associated.

Special prognosis.—Favorable, mildness of symptoms, postponement of time of access, completeness of apyrexia. *Unfavorable*, extraordinary violence, anticipation of period of access, unpleasant feelings and uneasiness during apyrexia, coma in cold stage with difficult breathing, delirium in hot stage, great prostration of strength during the sweating stage, or at the subsidence of the paroxysm.

Effects of intermittents. Patients sometimes die in the cold stage, from congestive determination to vital organs, the brain and lungs; they may sink exhausted (though this is rare) at the close of the sweating stage, or when the vomiting has been severe. Enlargement of the liver and *spleen* are the most common consequences of the protraction of intermittents; these may be either indolent or inflammatory; dropsies, jaundice, hepatitis, dysentery, may also be mentioned here.

Enlargement of the spleen is so general a coincident of malarious intermittent, that Piorry maintains it to be the cause of the whole train of symptoms. It occurs, he says, rapidly and subsides as promptly; disappearing under the use of the sulphate of quinine in a few seconds. This statement contains exaggeration and error. I have watched paroxysms of intermittent, in which there was no notable enlargement of the spleen, though carefully looked for. I have seen patients long subject to intermittents, also apparently free from any such enlargement. There is no doubt however of the general fact; and to the morbid condition of this organ, at least in part, I am disposed to attribute the tendency to recurrence so very tenacious in certain instances.

Treatment of intermittents. The indications are, 1. To arrest the paroxysm. 2. To palliate or relieve the symptoms which annoy the patient. 3. To prevent its recurrence. During the cold stage, external heat to the extremities and general surface, and sinapisms should be assiduously applied. If the stomach be oppressed, a quick emetic may be given. The tourniquet has been applied to the limbs by Kellie. The lancet has been used of late freely by McIntosh and others. Its effect doubtful, if not dangerous. Opium is of all our remedies most generally useful, and is capable both of preventing and cutting short a paroxysm, when given in full dose with sufficient promptness. If the chill be severe and prolonged, in a debilitated subject, we may combine it with camphor, piperine, capsicum, and other stimulants.

During the hot stage, if special determination to the head be present

in robust subjects, the lancet may be used ; cold affusion to the head, and the cold bath employed with advantage ; a cathartic may be given ; and diaphoretics, assisted with cooling drinks.

In *intermittents of malignant* character, the symptoms of overwhelming congestion and of typhoid prostration, must be met by a resort to stimulants of the highest power—sinapisms and other modes of external irritation, brandy, ether, and laudanum internally, in no timid doses. The stimulating diaphoretics, camphor, and the volatile alkali, with hot wine whey, and stimulating enemata, are also of use here.

During the intermission.—Cinchona is our most important remedy. The only objection to its employment consists in the inflammatory determination kept up sometimes to some organ, as the liver, spleen, stomach, lungs, and brain. This being subdued, it should be freely resorted to. It is given in substance, in infusion, tincture, and extract. The *sulphate of quinine*, prepared from it, is a medicine of inestimable value, on account of the concentration of valuable febrifuge powers ; dose, one to three grains, every two or three hours. Larger quantities excite the stomach and determine to the head, and are in ordinary cases unnecessary ; but we meet with instances of obstinate protraction, in which we may administer with the best effect very free doses, as from three to twenty grains. Our exhibition of this as of all other drugs should be regulated by the effect produced. We should not stop short of “quininism” as shown by buzzing in the ears, dimness of sight or vertigo, &c.

The administration of quina should be commenced as soon as the sweating stage—the solution of the febrile paroxysm—is fairly established. In ordinary cases it is of itself abundantly sufficient to put an end to the attack.

Bebeerine is perhaps the best substitute for quinine where the latter is for any definite reason contra-indicated.

Salicine has been lauded highly, but is far less effectual than either of the above.

Cornine, from the dogwood, is another article upon the long list employed here.

Piperine shows its best influence in combination with quinine. It is too much a stimulant to be used throughout the apyrexia, but may be added with much advantage to the dose of quinine, just before the paroxysm is expected. It forms thus a very useful combination.

Narcotine, or rather the muriate of narcotine, is highly eulogized by O'Shaughnessy and other East Indian physicians. I have found it, like quinine, available in a long list of maladies recurrent periodically.

Serpentaria—not valuable alone, but its infusion is a good vehicle for cinchona.

Sulphur—second only to bark, in the cure of intermittents, and particularly serviceable, as it may be given when bark ought not, in cases of imperfect apyrexia. Is well applied in all masked intermittents—when mingled with cinchona, forms an impressive combination.

The carbonate and prussiate of iron, and the sulphate of zinc, are highly recommended.

Arsenic—a very powerful remedy; it should be cautiously administered; best adapted to the more obstinate chronic habitual forms of intermittent.

If we distinguish between the power to prevent a coming paroxysm and that of doing away the liability to recurrence of an attack, we shall find that while cinchona is immeasurably superior as a means of fulfilling the first indication, it is excelled by arsenic in its permanent influence over the predisposition to relapse.

The above means failing, the patient should be subjected to a mild mercurial treatment, or sent to take a long journey or a sea voyage.

BILIOUS REMITTENT FEVER.—This title is well chosen, as expressive at once of the type of the disease, and of the derangement of the liver, and its secretory action, which uniformly attends.

Cause.—Belongs especially to warm climates and seasons; produced almost exclusively by malaria aided by the occasional or exciting causes formerly enumerated, heat and alternations of temperature, moisture, &c. Strangers from colder countries, or from upland districts, are predisposed to its more violent forms, and should carefully avoid the adjuvant agencies which bring it on or aggravate it—should live temperately, but not abstemiously—shun extremes of temperature, dampness, dews, night-air, &c.

Acclimation, if possible as regards malaria, which I doubt, is a very slow process, and cannot be assisted or hastened by any means known to us. By a prudent course of life, we may put off the invasion of endemic fevers, which are apt to assail new comers most severely.

Bloodletting, purgatives and mercurials, are falsely represented as prophylactics. They actually predispose by reducing the system and rendering it susceptible.

Symptoms.—Bilious fever commences sometimes with, and often without, a rigor or chill; then follow languor and weariness—gastric uneasiness—pains in the head, back, and limbs;—the skin becomes hot, and dry—pulse full, bounding, abrupt, and frequent, with restlessness—vomiting, thirst—tongue at first white and lightly coated, soon

covered with a thick yellow or brown fur ; its edges red and indented, as if swollen and pressed against the teeth. Bowels constipated—stools, when obtained, greenish and acrid. The exacerbation continues from twelve to eighteen hours.

Remission, or abatement of symptoms, then takes place in a greater or less degree. The pulse is slower and more regular ; the gastric disturbance not so urgent ; the other sufferings of the patient diminish. The completeness of the remission, its approach to intermission, best shown by the fullness of the cutaneous transpiration. The urine is also secreted more freely, and contains a lateritious sediment.

The return, or *exacerbation*, refers to the tertian period of access, at or a little before noon—observing the double tertian type in the correspondence of alternate days. Cases not unfrequently occur bearing analogy to the triple tertian, when we have on one day *two* exacerbations, and on the next, *one*. In the exacerbation, if the disease is not checked, the vomiting becomes more frequent—there is heat at the epigastrium, and pain on pressure—the headache is intolerable—the eyes cannot bear the light.

In the farther progress of the case, the tongue is dark brown, black along its central line—is chapped or cracked. The bowels are constive or the stools thin and watery. Respiration is more and more embarrassed with sighing and restlessness—the pulse sinks, becoming small and feeble. There is great prostration, with muscular twitchings ; the fatal termination occurs in from seven to thirteen days—average about nine.

Typhoid state or stage.—After many repeated exacerbations, the patient sinks sometimes into a condition thus designated, in which the symptoms resemble those of typhus. This more frequently happens among old residents, the termination taking place more promptly (whether favorably or otherwise) in youth and strangers. The disease may be, in this modified form, prolonged to thirty and thirty-five days—average fifteen or twenty.

General prognosis in bilious remittent, favorable. Proportion of deaths throughout the south and west, as small as in any part of the world. In our own city, not more than one in thirty or forty, perhaps even less.

Individual prognosis.—Favorable when the remissions are distinct and prolonged, with tranquil sleep and sweating ; if the bowels are moved easily and the evacuations assume faecal appearance and quality ; if the stomach become quieter and the tongue cleaner and less red.

Unfavorable, when the remission is short and imperfect ; when the

stomach is specially irritable, when there is much wandering of mind or delirium; inordinate frequency of pulse is a bad symptom—recoveries are rare when it transcends 130 or 140; so are great tenderness of epigastrium or tympanitic swelling, with or without vomiting, obstinacy of intestines, laborious breathing, coma, subsultus, fatuity.

There is considerable liability to *relapse*. This is to be dreaded when digestion is weak, tongue furred or red, bowels irregular; occurs more frequently on the 7th or 14th day.

Effects of remittents.—If the patient continues to reside in a malarious district, remittents often run into intermittents of great tenacity. This is the mode of subsidence of these fevers, the remission being heightened and protracted into an intermission. Sometimes a conversion takes place during seeming convalescence; or relapse occurs, into the form of tertian. Both in this way and more immediately they are apt to give rise to jaundice, dyspepsia—pulmonary complaints, when there is predisposition—enlargement of liver and spleen, hepatitis, splenitis, dropsies.

In the ordinary form of bilious remittent, the tendency to death is developed in local determinations, usually considered inflammatory, to the brain or the abdominal viscera.

Neurotomy.—The vessels of the brain and its membranes are found engorged; and those of the *gastro-enteric mucous membrane*, in similar condition: the spleen and liver enlarged, discolored, full of dark blood, heavy, softened and brittle: the bile discolored, vitiated, tenacious, flocculent and granulated. A peculiar olive hue of the liver is represented by Stewardson as characteristic. I have not found it uniform.

Treatment.—The first indication, both in point of importance and time, is the reduction of the force of morbid excitement, as directed upon particular organs or parts. This may be effected by the following means:

Venesection—Not a general remedy. Adapted to cases of robust, plethoric strangers; and to attacks, in which at the invasion, or during the early stages of the attack, the local determinations are specially violent and painful, as when there is delirium, or mania, or coma, or great epigastric tenderness, &c. When resorted to, should be employed freely, the blood being permitted to flow until the pulse yields; and under the same circumstances, local bloodletting by cups and leeches, will be found useful after venesection.

The cold bath may be considered a general remedy. Contra-indicated by feebleness from age or other circumstances, by a moist skin, by chilliness. Forbidden also by determination to the lungs, and

by the presence of diarrhœa. Should not be repeated if it produces a continued sense of coolness. Affusion preferable—next immersion. Its remedial value cannot be exaggerated.

Emetics.—Not often called for. If the stomach be oppressed with imperfect vomiting, may be useful both by cleansing it, and by determining to the skin and bowels. Should be abstained from, if there is pain at the epigastrium, increased on pressure. The antimonials are in general preferred. Ipecacuanha is safer, and more manageable.

Cathartics.—Absolutely necessary in the treatment of fever. The good effect of cathartics in fever—strangely disputed by some authorities, is threefold ; 1st. They are good and safe means of depletion and palliation. 2d. They are revulsive. The extensive tract of mucous membrane is a safe seat of derivation from the head, &c. 3d. They are depuratory, affording in the large secretion from the surface they excite, a free and ready outlet for injurious and effete matter, mingled with and retained in the blood, from exposure to bad airs, and defect of ordinary excretions. Great care must be taken to choose the least irritating and most efficient. I would avoid the combination so generally used in domestic practice, of drastic purgatives with harsh emetics. I would select such articles as cause least nausea or griping. Calomel, pulv. rhei, and the epsom salt, may be given so combined and alternated, as to produce all the good effects which we can hope for, from the evacuation of the bowels, and the disgorgement of the liver and other abdominal viscera, and may be prescribed in such doses, and at such intervals, as to keep up a permanent and highly salutary determination to the intestinal canal. But it is not necessary to persevere in what is called active purging, and if the bowels yield readily, we should discontinue the exhibition of cathartics. Serious harm may be done by urging their use too far, especially if there be much nausea and vomiting, with great epigastric tenderness, and the stools are frequent, small and mucous, and attended with pain, or griping, or faintness, or vomiting. Yet, on the other hand, it is an error more mischievous, to neglect entirely this valuable class of medicines, and to leave the patient to suffer all the evils of abdominal congestion and engorgement, and the irritation of accumulated morbid secretions in the alvine canal.

The mucous intestinal surface is one, I repeat, to which revulsive determination may be directed very safely, and to the great relief of more important and delicate organs. Its secretions may be increased to such an amount, too, without any injurious consequences, as to form a very impressive means of depletion.

Diaphoretics may be administered in union or alternately with ca-

thartics. The saline and sedative are at first to be chosen, as the nitrate of potassa with infus. rad. serp., acetate or citrate of potassa, acetate of ammonia, and nitrous ether. The use of these means should be continued through the *remission*, and so timed as to produce their fullest effect just at the period of exacerbation—the room being kept dark, cool, silent, and well ventilated, and cool drinks and ice allowed. The *vapor bath* is a good adjuvant to diaphoretics internally administered.

Thus we fulfill the first indication, palliating the violence of symptoms and resisting the tendencies to disorganization. But we must be prepared to interfere farther, with the purpose of arresting the attack—notwithstanding the still lingering prejudice that “fever is not to be cut short.” Why may not a remittent be checked in the incipient stage, as well as an intermittent and by the same treatment? Venesection has been known to effect this; so has the cold bath. Here also our most efficient remedy is cinchona. Unfortunately it is not always admissible or adapted, but experience has shown that the objections to its use are not as frequently present, or as weighty as was formerly believed. A well marked remission offers a good opportunity for the administration of quinine, but it need not always be waited for. Unless a high degree of febrile excitement, associated with some violent local determination, were present, I would advise the trial to be boldly though prudently made. Wright tells us that in the remittent fever of Florida, it was his usual custom to exhibit 20 grains sulphate of quinine, at any period of the paroxysm. “The practice was successful; not a single death having been reported during the season.”

If the exacerbation be often repeated, and the patient's strength seem about to yield, resort to the stimulating diaphoretics—camphor, the volatile alkali, tinct. opii camph., with infus. rad. serp. et cinchonæ. The drinks may be stimulating and nutritious, as arrow root, with wine whey, &c.

Epispastics should be employed as well for their excitant, as their revulsive influences.

When stimulants become necessary, such must be chosen as shall least irritate the stomach. Of these capsicum and spts. terebinth. are ascertained to be the most generally admissible. Under such circumstances the tinct. cantharid. may be occasionally exhibited with advantage. By giving rise to inflammatory irritation of the urinary organs, it acts both as revulsive and generally excitant.

The irritability of stomach in bilious remittent, is one of the most embarrassing symptoms. It may at first arise from the presence of crude or improper ingesta, and afterwards be kept up by the undue ac-

cumulation of vitiated secretions; under these circumstances an emetic or a repetition of emetics will be called for; but this is *very rarely* necessary. If connected with inflammatory affection of the stomach, as shown by heat there, and pain increased on pressure and motion, resort must be had at once to the mercurial treatment, our best hopes of relief,—in the meantime applying a large blister over the epigastrium without delay. It is improper here, as is often done, to urge the organ by a great diversity of prescriptions. It will be best to desist awhile from all such efforts, while we employ external means only, such as leeches or cups, fomentations and sinapisms. Laxative enemata may be administered to determine to the bowels. Among the remedies most in use for the relief of this gastric irritation, are soda water, the effervescing draught, lime water with or without milk, the capsicum pill, small doses of anodynes, both by the mouth and rectum, and endermic applications of opium and morphine.

Constipation is another troublesome attendant. If it presents itself while the pulse is full and hard, and the strength good, bleed freely and to relaxation. Dash cold water on the legs and abdomen; give purgative glysters, administer large quantities of fluid in this way, by De Haen's or other proper apparatus. Do not hope to overcome it by increasing the dose of cathartics—you may thus destroy the stomach. Vary them, using the mildest and least offensive.

Hiccup in the latter stage is very harassing. I have seen it continue three, five, and nine days, and yet the patient recover; combat it by musk, opium, and the volatile oils.

The *mercurial treatment* must be resorted to, if the attack be malignant or specially violent; if the patient be feeble or cachectic, or in bad health previously to his seizure; if the disorders of the place or season be unfavorable—in Sydenham's language, if the epidemic constitution of the air be bad; if the case be unusually protracted, or run into the typhoid state. The dose should be proportioned in frequency and amount to the exigency of circumstances, from two to ten grains every two or three hours, until the symptoms of incipient ptyalism show themselves. Calomel thus employed does not interfere with any of the other remedies indicated. The objections to this mode of treatment are easily answered. Its occasional inefficacy acknowledged; its evils of use as well as of abuse admitted. That it implies some suffering, and perhaps some risk, will not be denied, but these should be compared or contrasted with the probability of the fatal termination which it so often averts. It seems to be attended with much uncertainty in the case of young children; in such subjects therefore dependence should rather be placed on the other remedial measures already suggested.

COUNTRY FEVER.—This is a title given in the cities of the south, to a very insidious and dangerous modification of bilious remittent, originating in transient exposure to the intensely concentrated malaria of the low country, as by sleeping a night or more upon a rice plantation after the frosts of spring have ceased. Experience shows that such an attack is attended with peculiar hazard, and the return to the city atmosphere is universally believed to endow it with special malignity. The progress of the case is irregular, the remissions uncertain both in degree, time of occurrence, and duration. The type is exceedingly complicated, obscure and confused. A like aggravation of the endemic remittents of the far west, is said to result from similar removal to the healthy uplands, from low miasmatic spots, during the latent period, and before the febrile influences of malaria have developed themselves in the system.

The *prognosis* in this modification of bilious remittent is unfavorable, and the proportional mortality very great. The patient sinks, worn out rapidly by the accumulation of paroxysms one upon another, each more prostrating than its predecessor.

The *treatment* of country fever must be prompt and decided. Our best dependence is upon the combination of the mercurial, with sulphate of quinine, in efficient doses. Determination to important organs must be met by the active use of the revulsive and palliative measures above recited.

It has been mentioned that remittent fever runs occasionally into a typhoid state. In such attacks the hot bath (110° to 120° Fahrenheit) should be employed, and diaphoretics in full doses. In some instances of this nature the most energetic and persevering use of stimulants is demanded; among these a fair and free trial seems to be due to the spts. terebinth.

During the *convalescence*, attention is necessary to prevent relapse, or recurrence of fever. The bowels must be kept soluble, though active purging is not admissible. Of tonics, the chalybeate preparations, the elixir. vitriol: and the exercises of gestation at first in a carriage or boat, afterwards on horseback, are the best. The diet must be carefully regulated as to quantity; its quality may be determined by reference to the patient's habits of living.

A slow or chronic irritative fever continuing to harass the patient, evinces the existence of some visceral obstruction, or inflammation of obscure character. The blue pill, in small doses nightly, combined with Dover's powder or some other preparation of opium, in such quantity as to produce a gentle anodyne effect, will probably give relief. In the meantime the diet should be very light, and prudent avoidance of every excess or exposure enjoined.

The mercurial sore mouth may be washed with some astringent gargle, as the sulph. zinci, acct. plumbi, or alum, the mineral acids, infus. cinchonæ. After all the means proposed, however, there is much need of patience on the part of the sufferer, as it is slow of subsidence under any mode of management.

CONGESTIVE FEVER.—While I deny that there is any form or type of fever to which this title is exclusively appropriate, I comply with the custom among American writers, who thus denote a particular class. Fevers present a mass of irritations, inflammations and congestions, the varied prominence of which occasions well-marked differences. In some, the symptoms of inflammatory determination to certain organs, are more strongly pronounced; in others the tokens of irritation, and in others still, those of congestion, as formerly described, predominate. None of these are new either in practice or in medical writings; but it cannot be denied that within a few years past, there has been a striking change in the general character of the malarious fevers of the southern and southwestern country, nay, all over the United States wherever these fevers are known. All practitioners agree that the open violence of febrile excitement, which once belonged to them has disappeared in the majority, and that the cases anciently known as "algid," "pernicious," "syncopal," "lethargic" and "malignant," instead of being occasional and occurring as dreaded exceptions, have come, by their proportional numbers, to form the portraiture, and in their frequency the rule. The name is applied chiefly to this class of remittent fevers, but includes also the similar instances of intermittent, known as malignant.

It is probable that congestive fever owes its peculiarities to the intensity or concentration of the febrific poison. By it innervation is impaired, or, more properly speaking, perverted, the capillary system is paralyzed; whence the congestion in the skin, the brain, the lungs, and other viscera; the cold shrunken surface, the dyspnoea, the laboring heart, the disordered circulation.

We may separate congestive fevers into four groups, relatively to the prominent symptoms.

1. The cerebral, in which there is stupor or absolute coma—the skin being sometimes cold and sometimes hot, the pulse usually slow and full, but unresisting—the face flushed or livid, the breathing laborious, with moaning and sighing. The prognosis is, in this of all the varieties of congestive fever, least unfavorable. We may still exert much influence upon the system with our most important remedies.

2. The thoracic—this is characterized by extreme dyspnœa, the respiration being performed gaspingly and slowly, with prolonged intervals; the patient eagerly seeking air, rising from bed and rushing to door or window; pulse weak and frequent, the mind often clear, the face pale, the skin moist and cold. The prognosis extremely bad, remedies seeming to exercise little or no control over the symptoms.

3. The abdominal. Here there is generally a degree of suffering which shows a nervous condition strongly contrasted with that present in the other forms of congestive fever. Sometimes nothing is complained of, but the most profound and oppressive nausea, under which the patient sinks, with or without vomiting; diarrhœa sometimes, and still more frequently dysentery comes on, with intense tormina and tenesmus, and numerous dejections of muco-sanguineous or sero-sanguinolent matters. Meteorism and hiccup precede death. The prognosis rather unfavorable, but by no means desperate.

4. The necræmial—for I know not better how to denote a form in which death seems almost at once impressed by the intensity of capillary paralysis. There is little or no suffering—the patient falling at once into collapse. The skin is very cold; hence the phrase *algid fever*; all the vital actions which tend to the generation of animal heat seem suspended, the hue of the surface being sometimes pale, at others bronzed; the features are shrunk, the pulse feeble, and the heart itself scarcely acts. Respiration is slow and labored. The prognosis in such attacks is of course entirely unfavorable.

The symptoms above recited are of course more pronounced during the exacerbation. If the type be intermittent, they may indeed disappear or subside. I have seen an interval between two paroxysms of a malignant intermittent, marked by little if any discomfort. The thoracic or necræmial cases, however, are not unfrequently fatal at once. I have seen two deaths from the first within nine and six hours from the invasion—both in young adults, previously in good health. It has been observed that the third paroxysm or exacerbation is the most usually fatal. Of the necræmial, I have seen little. It is most often met with in tropical climates, affecting the white race exclusively, where the malarial inquisition of the air is most intense, as in the East and West Indies and Africa.

The *treatment* must be adapted to the form and circumstances.

1. In the *cerebral* attacks, the head must be shaved or the hair cut close, and the cold douche applied repeatedly; the bowels must be moved with a quick cathartic; the extremities revulsively irritated; if the pulse be good, and the patient robust, or unacclimated, venesection may be resorted to, yet cautiously, or topical bleeding by leeches or

cups to the head, and the sulph. quinine exhibited in free doses. We must not wait for interval or even remission, but administer it as soon as the measures just recited have been carried into effect. If the patient can reply intelligently, we must aim at quininism, nor stop short of its induction previously to the period of a second paroxysm or exacerbation. With this view large quantities are given. I rarely exceed 10 grs. to \mathfrak{Z} i, others employ unlimited amounts—from 20 to 60 or even 80 grains.

2. In the *thoracic* congestions, we have little to hope generally. I scarcely know what to advise. Quinine itself in any dose seems powerless. The most promising course is in the administration of a quick emetic—as of mustard and salt—external friction and irritants—stimulant purgatives, such as turpentine in large doses—the hot bath—ether and laudanum. If at hand, I would experiment on these desperate cases, with electricity and the inhalation of nitrous oxyd gas.

3. In the *abdominal* we have far more to hope. When the stomach is chiefly affected, we see most clearly the benefit of the free use of sulph. quinine, which acts sometimes with almost miraculous promptness. It must be given at once and in large dose, and repeated until quininism comes on, a state that must be kept up until the period for two exacerbations has passed over. This may be done by the repetition of moderate doses. If there be diarrhœa or dysentery, mercurials and opiates must be combined with it at first, and afterwards astringents; these may be given in enemata. The hot bath is here also usefully adjuvant.

4. The *necræmial*, *algid*, *pernicious* forms of malarious fever require the prompt administration of our highest order of stimulants, internally and externally—always with free doses of sulph. quinine, brandy, ether, laudanum in no timid amounts. When sensibility and circulation are in some degree restored, if the stomach be oppressed, a mustard emetic has been found serviceable; if the abdominal viscera suffer, calomel in large doses as deobstruent and cathartic promises benefit.

Convalescence from all these forms is slow, and should be aided by infusion and tinct. cinchonæ; and by generous diet, change of air and exercise carefully adapted to the patient's strength.

REMITTENT OF CHILDREN. INFANTILE REMITTENT—*olim*, *Worm Fever*.—Attacks between the third and twelfth year. Begins with irregularity of appetite, furred tongue, offensive breath; the nights are restless and wakeful, the skin being then hot and dry, with much thirst

and headache, the pulse frequent and jerking; the child starts frequently in its sleep and grinds the teeth; the bowels are costive or irregular, with loose acrid stools. As the disease progresses, the abdominal disorder becomes more and more prominent, the belly is hard and tumid, the face and feet are puffed and edematous—there is loss of strength—a light delirium is present, with screaming at intervals, or there are stupor and coma; convulsions supervene and death soon follows.

The disease is ranked among the remittents on account of the distinctness of abatement of febrile symptoms, alternating with exacerbations. The *period* of remission is not regular. The exacerbation comes on sometimes about noon, but most usually at night; its general duration is from nine to twelve hours.

Causes.—Infantile remittent may arise from any derangement of the digestive system, at the age above specified; costiveness allowed to become habitual; the use of unripe or decayed fruit; unwholesome diet generally; want of cleanliness of person, or of ventilation, especially in the sleeping room. It is sometimes produced by the irritation of worms—*lumbrici*—present in undue number in the intestines.

Prognosis, generally favorable. Signs of danger are such symptoms as betoken special derangement of the sensorial function, great restlessness, delirium, coma, subsultus tendinum, convulsions, strabismus, dyspnœa.

Treatment.—Our principal remedy is the purgative, which must be administered with some perseverance. Calomel is decidedly to be preferred; combined best with castor oil or rhubarb. The neutral salts may not be trusted to alone.

The tepid bath is highly useful in general; sinapisms if there is much local determination; cold affusion, if the head is affected, upon that part; anodyne, mucilaginous enemata, if the bowels be loose and irritable.

If worms be ascertained to be present, add or alternate some anthelmintic with the cathartic means—*spigelia* (the efficacy of which is not however confined to its vermifuge property) *melia azedarach*, turpentine or camphor. The infusion *rad. serp. et cinchon.*, with some alkali, should be given as soon as an intermission of fever occurs, or even in good and distinct remissions.

CONTINUED FEVERS.—YELLOW FEVER.—Its nature, history and type much disputed. It is a *distinct form of continued fever*, not to be confounded with typhus on the one hand, nor with bilious remittent on the other. It is an endemic of well known regions.

It consists specifically of a *single paroxysm*, which, whether long or short, is never repeated.

The *cause* of yellow fever is peculiar, and exceedingly obscure. No successful effort has yet been made to designate it, nor even, as it seems to me, any plausible conjecture offered on the subject.

For its production the following conditions are demanded :

1. Heat.—Some have asserted with precision, that it will not prevail when the temperature is below eighty degrees of Fahrenheit ; but this is not made out.

2. Moisture.—It certainly is most apt to arise in wet summers, though to this rule also there are exceptions. When it commenced in Charleston, in 1828, the season had been unprecedentedly dry.

3. Malaria.—It is met with chiefly in malarious situations. But malaria alone, or merely aided by heat and moisture, is not capable of generating it, or it would reign annually wherever bilious remittents abound.

4. A fourth condition is then essential to its generation ; this consists in the peculiar circumstances of a city atmosphere, the state depending upon a *crowding* together of human habitations. Yellow fever is the disease of cities and towns, not of villages and country places. In the apparent exceptions of its prevalence in ships at sea, and in marine and other hospitals, as at Onrust and Edam, we still have the condition specified.

Yellow fever almost always commences at some foul wharf or ship, or in some ill ventilated lane or alley, whence, as a centre, it spreads in all directions.

Yet these influences, however much they may *conduce* to the generation and spread of yellow fever, are by no means capable in themselves of *creating* it. Its existence is confined to well known localities, beyond which it makes excursions or extends itself occasionally. It is unknown in many regions where all the foregoing conditions of heat, moisture, malaria, and density of population are found, as in Canton, Calcutta, Cairo, and Constantinople. The essential generating cause of yellow fever, then, which exists in Havana and Vera Cruz, and does not exist in other cities where the temperature is as high and the air apparently quite as impure, is hitherto undetected. That it is communicable by transportation in the infected atmosphere of a foul ship, by ordinary fomites, and by actual contagious dissemination from the bodies of the sick, is highly probable, and the evidence in support of this opinion, is every day accumulating and gaining strength.

In the hot climates in which it occurs, the natives of cities subject to its invasion, enjoy the privilege of exemption from its attack. In the

West Indies and New Orleans, this immunity is perfect ; in Charleston nearly so. In colder climates and northern cities, the case is far otherwise ; all are alike and equally liable to it. The following suggestion is offered to explain this circumstance. The influences of climatic heat and cold, are opposed or contrasted in their effect on the human constitution. The southerner retains from summer to summer the habitudes generated by the agencies of heat, as his winters are neither intense nor permanent enough to alter these habitudes. The northern man, on the other hand, is continually undergoing the alternate affections of two climates ; his summers, though shorter, being as hot as they are in low latitudes, and his winters colder and much longer.

No attack of any other endemic fever, as bilious remittent, tends to destroy the predisposition of a stranger to yellow fever. This predisposition is, however, gradually lost by long residence and complete acclimation.

Negroes are less liable to it than whites ; they may, however, be attacked, especially if born in the interior and removed to town. No African is known to have been seized with it in Charleston or Savannah.

The *prophylaxis* consists in the careful avoidance of all ordinary exciting causes. Temperance, but not abstemiousness, recommended. Low diet, venesection, cathartics, and mercurials, so far from being serviceable, are dangerous and injurious means. The heat of the sun by day, and the damp dews of evening and night, must be shunned.

History and Symptoms.—Yellow fever presents itself under two modifications, which depend probably in a great measure upon the state of system of the subject attacked, but partly perhaps, also, upon the intensity of the causes applied. The modifications are familiarly referred to in the phrases inflammatory and congestive, which are fairly enough characteristic of the distinctions between the two in appearance, symptoms, progress, and necessary treatment.

Of the *inflammatory* form. The paroxysm may or may not commence with chilliness ; to which soon succeed heat and dryness of skin, with gastric uneasiness and pains of head, back and limbs, rapidly becoming intense ; anxiety, restlessness ; flushed, turgid face ; red and watery eye, its motions being painful.

Head often attacked severely ; patient being maniacal or delirious, and screaming with sharp pangs—confusion of thought no uncommon symptom from the very first.

Vomiting, which occasions pain, with heat and burning at the stomach, and a feeling of weight and hardness usually attends ; and pressure on the epigastrium cannot be borne.

The breathing is in many cases hurried and embarrassed ; sometimes slow and labored, with sighing and oppression at precordia.

The surface is pungently hot and harsh ; becomes on the 2d or 3d day yellow, or of an orange or bronze hue.

Pulse not to be trusted. In the worst cases little altered ; in milder attacks, full, hard, jerking and frequent.

Tongue is at first soft and swollen and indented by the teeth ; after a while its edges become fiery red, centre furred and brown.

Water is urgently desired, as much for the coolness it imparts to the burning stomach, as for the relief it affords to thirst.

The bowels are usually torpid and moved with difficulty. I have seen a case begin with diarrhœa.

The countenance, as in all malignant diseases, is strikingly expressive of anxiety, distress, gloom, impatience, sadness, wildness, terror.

Such is a description of the first stage, following the description given by writers, who recognize a division into three obvious stadia.

This stadium comprises the whole of the febrile paroxysm or excitement ; its duration is from four to sixty or seventy hours ; the average being probably thirty-six to forty.

The *second stage*,—by many considered, but improperly, as a state of remission. “It is a stadium without any fever.” (Lining.) It commences with a gradual abatement of the preceding symptoms. The head is somewhat relieved, the pains in back and limbs disappear perhaps : the skin becomes cooler, often moist and soft. The pulse is nearly natural, but increases in frequency and grows weaker : the respiration easier. The pain and burning of stomach are lessened, the vomiting attended with less effort. The countenance is less turgid ; the eye less red and assuming a yellow tinge. The patient is less anxious and distressed, and begins to indulge hopes of recovery. This stadium lasts but a few hours, never more than from twenty-four to thirty-six.

The *third stage* is distinguished from the second by no marked line. The symptoms of prostration or collapse are gradually shaded more and more deeply ; the pulse sinks, is quick, unequal and depressed. The skin takes on a mahogany hue, which disappears on pressure, and returns slowly. The tongue is sometimes soft, swollen, moist, indented, brown on the top, with a dark streak along the central line ; often clean, and of a deep fiery red, as also the whole mouth and lips ; perhaps dry and cracked. The stomach is excessively irritable ; its contents are at times ejected, without the effort to vomit, either by sudden contraction or hiccup. The *black vomit* comes on. The bowels yield,

with black acrid and offensive discharges; the surface is cold and clammy; there is low muttering. Hemorrhage often bursts from every outlet, and death comes to the relief of the sufferer.

In the *congestive* form, the tokens of open inflammatory excitement seem wanting, the system being prostrated before the excessive force of the morbid cause. If the head be the centre of determination, there is lethargy, stupor, coma, convulsions.

If the stomach, the symptoms resemble those of poisoning with arsenic or other corrosive poison: there is no regularity of progress.—Black vomit supervenes early.

The lungs occasionally bear the *onus* of the attack, with livid face, difficult breathing, suffocation.

These cases are all marked, in a peculiar degree, by the mahogany or bronze hue of the skin, occasioned, I believe, by sluggish or suspended action of the capillaries, perhaps by actual paralysis of this system of vessels. It is a most gloomy symptom.

Under these circumstances, the patient usually utters little or no complaint; there may be no vomiting; the epigastrium bears pressure; the bowels are costive; the tongue dark red, smooth and dry; the countenance stolid and fatuous; the skin insensible to irritation, or if inflamed, becoming gangrenous and sphacelated.

Anomalous cases, forming pathological curiosities, occur not seldom in this terrible disease. I have seen a patient walking about to the very moment of his death, carrying with him a vessel to receive the black vomit which he threw up frequently and copiously. Others die complaining of a single symptom, as headache and the like.

The duration of yellow fever varies much. It may terminate in a few hours. It may run on into a typhoid condition, and last from twenty to twenty-five days. The majority of deaths occur on the fifth and sixth days.

Convalescence is tedious, and apt to be harassed by abscesses on the surface. Relapses never occur. Second attacks are rare, and do not happen to subjects remaining in the same locality; but when the residence is changed, by advancing from a northern to a southern climate, the protection so gained is not absolutely to be depended on.

Prognosis.—Yellow fever is the most dreadful form of fever, taking precedence even of the plague in proportional mortality. The deaths at different times of its occurrence, and in different localities, stated at one in three, (Gibraltar, 1804,) two in three, (Philadelphia, 1820,) seventy per cent. (Xeres de la Frontera, 1820.) In different localities and epidemic seasons, differs much however in proportional mortality. It is less fatal in the cities of the southern states. In Charleston,

Savannah, Mobile, it will scarcely average more than 1 in 6 or 8. It is greatest of course in the congestive forms.

The newly arrived stranger, the much exposed, as sailors, the intemperate, are in the greatest danger. With reference to this latter circumstance, national habits are of importance, the Irish, Germans, English, and Scotch, suffer most; French and Italians least. Young children when attacked are in great danger.

Unfavorable symptoms. Much pain, heat, and tenderness at the epigastrium. Weak pulse. Skin relaxed and moist, unless this be attended with notable general relief, and the strength holds out. Shortness of first stage of febrile paroxysm; I saw a patient recover, however, in whom it had lasted but four hours. Suppression of urine, or rather want of the secretion, considered by Rush a fatal sign; I have met with it in several instances, two of which recovered. We must not confound it with strangury, which is almost always favorable, yet I have lost a patient after its occurrence. Spots on the skin, petechiæ, vibices. Hemorrhage is among the very worst tokens of danger. Blood may be seen oozing from the tongue, gums, lips, and cheeks; it is ejected from the stomach; it colors the urine, and flows profusely from the bowels. It is often highly offensive in smell, and occasionally is so thin that it refuses to coagulate. It may exude from every opening of the body, draining away the strength of the patient, from the nose and ears, and from the surfaces of denuded blisters. Finally, black vomit. This symptom deserves a separate consideration.

Black Vomit consists of black specks or flakes, swimming in a brownish fluid, resembling soot and water, coffee grounds, &c. It is not, as was once supposed, composed of portions of the villous coat of the stomach, eroded and sphacelated, and mingled with the fluids of that cavity, for recoveries occur after its having taken place, and I have collected it from stomachs entirely uneroded.

It is not bile in any manner vitiated or altered, for it has been found in the stomach when the pylorus was closely contracted, and has been traced into the gastric vessels. It is found often in the stomach and intestines when the gall bladder and ducts are filled with ordinary bile. It differs besides in all its qualities from bile, however changed. It is not blood *effused* into the stomach and there acted on, for in distinct hematemesis the blood undergoes no similar change, retaining its purple hue, however long it may remain in the organ; and to suppose a peculiar fluid thrown out in the diseased stomach which shall be capable of so changing the blood, is merely offering two conjectures to explain one phenomenon. It is more simple to consider the black fluid, as I believe it to be, the result of a specific action of the gastric vessels

upon the blood which they contain. It is so characterized before leaving the vessels, being traced into their very calibre. It has been maintained to constitute the termination of a specific form of inflammation, and though this may be the fact in yellow fever, yet it does not apply to its occurrence in other circumstances, as in pregnancy, rupture of uterus, dropsy, &c.

I have not seen black vomit thrown up in yellow fever earlier than the 16th hour, the 20th and 30th. It makes its appearance for the first time most frequently during the second stadium, improperly considered as a remission, towards its termination; or at the commencement of the third stadium. I have seen several recoveries from it; many more have occurred in the practice of my friends.

Autopsy shows the brain usually with its membranes engorged and inflamed; water has been found in the ventricles, and rupture of blood vessels with extravasation.

The lungs and pleura are sometimes found to have undergone inflammation.

The stomach is deeply reddened and injected on its inner surface, sometimes on its outer also; so with the duodenum. I have never seen gangrene or sphacelus.

Upon the color of the liver great stress has been laid, especially by Louis. It is said to present a characteristic hue of yellow, variously described, as fawn color, cafe au lait, straw color, &c. I remark that many cases of yellow fever do indeed present this color, well described by the first two phrases. I have never seen the same hue of the liver in any other form of disease. But it is neither uniform, nor essential; of course cannot be regarded as diagnostic or characteristic. It is often wanting. So say the mass of authorities. I have found the liver natural in appearance, of a dark blue, claret colored, and brown or olive.

The spleen, the organ most generally affected in all fevers, is in yellow fever, usually grumous and friable; often easily broken, sometimes difficult to remove without breaking. It is not apt to be much altered in bulk, perhaps is a little larger than natural.

The urinary bladder is not unfrequently inflamed and contracted.

Treatment.—In the inflammatory form, venesection is usually considered an essential remedy. It may be indicated as in bilious remittent, but I do not regard it as generally necessary or useful. Local blood-letting is unobjectionable; and cups or leeches may be applied to the head and epigastrium.

The cold bath has proved in my hands equally effectual with the lancet, and safer. Affusion at first or immersion, afterwards aspersion or sponging should be employed as the case progresses.

Cathartics form an indispensable part of the treatment. The articles best retained by the irritable stomach, and in part therefore for that reason preferred by me, are calomel and the sulphate of magnesia. These prescribed in alternate doses will act promptly, freely and effectually.

Emetics are injurious, unless when the patient has eaten a full meal just before the attack, and the vomiting has not been sufficient to empty the stomach.

Diaphoretics are useful. The pulv. antimon., infus. rad. serp. and ether nitros. may be employed.

But our reliance cannot be placed on any other mode of management of this terrible disease than that commonly referred to as the *mercurial treatment*; to this therefore I resort early.

Calomel should be given in large and free doses, repeated with a frequency proportioned to the violence of the case, until the disease is subdued. It is a dangerous error to cease from its exhibition when ptyalism has merely commenced.

It is objected to this mode of management, that it is too slow. I have produced the alterative influence of the remedy, as shown by ptyalism, in 15 hours—20, 24, and 30 hours. This is early enough in the majority of the cases. Armstrong, with much less urgent employment of it, talks of succeeding "within the first and second days." The best adjuvants are the cold bath and the saline purgative.

Those who complain of the danger and ill effects of mercurial remedies, are chiefly such as have never used them or seen them properly used, and with the requisite boldness and promptness. They find calomel, they tell us, too powerful in doses of one, two, and five grains; we find it, alas! deficient in power, though administered in half drachm and drachm doses.

If it be alleged that some die in spite of its use, we have but to acknowledge that man is mortal, and will die of curable diseases occasionally, and in spite of our best skill and most energetic medications.

It is farther true, that if the case has progressed too far for restoration, the effects of the remedy may add not a little to the sufferings of the patient; nay, he may die with a sloughing cheek, and gums, and tongue; but this no more detracts from the value or propriety of the plan of treatment, than the sphacelation of a blistered spot from the value and propriety of epispastic applications, and is to be explained on the same principle, namely, that the vascular action has fallen so low under the circumstances, as to be incapable of supporting the local inflammation superinduced.

The permanent ill effects of mercury are rare and much exaggerated ; they have *never* occurred in my own practice. I have never met with them in an adult. I have seen in consultation two such deaths (in a young child and a youth of fifteen) as I have above alluded to.

In children, I should not resort of choice to the mercurial. Its alterative influence is seldom well developed in these cases. The milder purgatives used freely in the first stage, and afterwards the combination of an alkali with an anodyne diaphoretic, such as a weak solution of carb. potass. with a small portion of tinct. opii camph., form my usual treatment of this class of patients. If the intensity of local determination requires it, the lancet may be used or leeches may be applied to relieve the head and stomach. While the skin continues pungently hot, the cold bath will be exceedingly beneficial, and even after the earlier excitement has subsided, we shall find much advantage in occasional sponging with ardent spirit. The restlessness of the latter stages, too, is often subdued, and comparative tranquility procured by immersing the little sufferer in the tepid bath.

The arrest or subjugation of yellow fever has been attempted by the efficient employment of cinchona and its salts. The former was given in full doses in the West Indies, but the stomach will rarely bear the amount necessary to make a prompt impression. The sulphate of quinine has been exhibited in the cities of the southern states, and, as many distinguished physicians affirm, with the most beneficial results. Some have relied on it alone in large doses, from \mathfrak{v} i. upwards, commencing early and repeating freely. Others precede its exhibition by V. S. or by cold or hot baths. More frequently it is combined with some mercurial. Such was "the favorite practice of the U. S. army in Mexico in 1847." Dr. McCormick used V. S. with extreme caution, prescribed blue mass. 10 grs. immediately, after that gave 30 or 40 grs. sulph. quinine, then prescribed s. qu. 8 grains, with b. m. grs. 4 every five hours. The deaths under this course were not more than 1 in 20.

Stone and Lewis declare sulph. quinine unadapted to the ordinary forms of yellow fever. The latter has met with an intermittent variety in which it was highly serviceable. My own employment of quinine in yellow fever has not been satisfactory. I have derived much more benefit from a strong infusion of cinchona, adding a portion of the tinct. cinch. comp. in the second and third stadia, with such other remedies as were indicated.

The acetate of lead is much extolled by Irvine and others ; I have not succeeded with it. I suppose it best adapted in cases of the hemorrhagic character, perhaps the most intractable of all the modifications of this terrible pestilence. In such cases I employ also the nitrate

of silver, in free doses internally, and as an application to the bleeding surfaces.

The tinct. cantharides may be employed in the latter stages, both as a stimulant and to procure revulsive determination to the urinary organs.

The spts. terebinth. is highly useful with similar views, and under similar circumstances.

Certain measures, in the meanwhile, may be instituted for the relief of particular symptoms or local affections. To subdue the violence of headache, shave the head, pour cold water on it from a height; apply pounded ice, leeches to the temples, a blister on the back of the neck. For the irritability and pain at stomach, apply leeches to epigastrium and sinapisms. The alkaline solutions, the alkaline draught, opiates occasionally, and, in the latter stages, capsicum in pill and infusion, and turpentine may be used with advantage.

The patient often complains of muscular pains, urgent and intolerable; sinapisms and opiates, or friction, with oil and laudanum, will render them less grievous.

In the *congestive* form of yellow fever, the hot bath is invaluable. An active emetic has succeeded in rousing the insusceptible system, mustard and salt being preferable for this purpose. If the strength fail, give stimulants freely—even in enemata.

Much service may be hoped here, from the sulph. quinine, which seems better adapted than in the ordinary or inflammatory attacks. It may be combined advantageously with opium and calomel.

In all cases when the sensibilities are retained and the patient suffers from restlessness or pain, opiates are indicated, and may and ought to be used freely. I have seen no injurious consequences, and much benefit follow their exhibition in full doses.

The apartment must be kept in all cases well ventilated and perfectly clean; so also the bed and body of the patient. Recoveries from yellow fever have occurred under such extraordinary circumstances, that the condition of the sick man can never be known to be absolutely desperate. He must never, therefore, be abandoned.

CATARRHAL FEVER.—The most frequent of idiopathic fevers; most common in winter and spring, and in cold climates; I have, however, seen it epidemic in every month of the year in different years. When widely prevalent it is called *Influenza*.

History and Symptoms. Catarrhal fever commences usually with

chilliness, headache, sneezing, coryza, red and watery eyes, light soreness of throat and larynx. Cough comes on with rattling of mucus in the air passages; at first no expectoration, afterwards mucus is spit up; the tongue is red on the edges, and covered with white fur; pulse frequent, hard; skin hot and dry; pains in the back and limbs; unaccountable depression of spirits; exacerbation at night, with restlessness, cough, and some gastric uneasiness; tension and stricture across the chest. It sometimes happens that the whole force of the attack is determined to the head, assuming a peculiar form. There is extremely violent pain in the forehead and cheek, usually on one side; the eye of that side, and the skin surrounding it, looking red and inflamed. The pain is depressing and insupportable, and takes on an intermittent or distinctly remittent character, the paroxysms recurring for the most part in the morning or forenoon, and exhibiting an obstinate tenacity. It is obviously seated in the frontal sinus, and occasionally affects the antrum. The voice is altered in a characteristic manner.

General prognosis favorable; fever subsides, expectoration becomes easier and mucopurulent, skin moist, respiration free, sleep refreshing, appetite returns. In adults rarely fatal, unless by exciting more serious disease. In the predisposed, apt to produce phthisis in its several forms, especially chronic bronchitis. Asthma has followed. In pregnant women may bring on uterine hemorrhage and abortion; whether by its specific irritation, or by the mere mechanical agitation of repeated coughing, is not decided. In old people and very young children, may suffocate by engorgement of the air cavities with mucus—*olim, Peripneumonia notha*. In infants the symptoms of croup often mingle themselves with the other circumstances denoting the invasion of catarrhal fever. The determination to the head is sometimes so great as to give rise to coma and convulsions.

The identity of sporadic catarrhal fever with influenza, the most rapid and extensive of epidemics, is universally taken for granted; the symptoms indeed seem to be the same, but in origin and history they are strikingly contrasted.

Causes. *Sporadic catarrh* is produced by exposure to cold and dampness; to alternations of temperature; to various odors and effluvia, as of the rose, meadow grass, seleniuretted hydrogen, chlorine.

Epidemic catarrh, influenza, is of obscure and unknown source, invading families, ships, communities, fleets, cities, in the most unexpected way, and affecting great numbers simultaneously. On some of these occasions there have been noticed coincidences of atmospheric change, as at Moscow, a great rise in the temperature, 40,000 persons being attacked in one night; elsewhere a sudden change to cold has

been followed by the same effect ; easterly winds have been thus coincident with it, and more than once a colored haze in the air. Schoenbein suggests the presence of *ozone* in the atmosphere as one of the most constant of these coincidences, and, therefore, probably causative ; and Spengler and others maintain this hypothesis, which will soon be confirmed or overthrown.

Contagion is reckoned by weighty authorities among the causes of catarrhal fever. Its progressive character, its seeming transportability, favor the opinion ; but its contagiousness is not yet clearly made out.

Treatment. Catarrhal fever may often be arrested in its *forming stage* by the free exhibition of opium, and indeed of other stimulants ; but the opportunity for the use of these is transient. In the more common inflammatory form, venesection is often advisable ; if the tongue be much furred, or the breathing difficult, an emetic ; next purgatives ; these may be combined with diaphoretics, the latter persisted in and united with anodynes and demulcents, when the excitement is, in a certain degree, subdued. Dover's powder is here an invaluable medicine. If the local irritation run high, a blister may be applied to the chest or the back of the neck, according as the thorax or head is most affected.

The peculiar catarrhal affection of the *frontal sinus* above described is of very difficult management. The lancet will procure a certain degree of relief. Cups or leeches applied to the temples are of some service. It will be necessary to determine to the bowels by an active cathartic. These depletory measures being premised, I give at bed time a full dose of Dover's powder, employing pediluvium, and keeping warm cataplasms with mustard applied to the lower extremities. The sulph. quinine in free doses is sometimes useful ; arsenic also has been recommended in these cases.

The chamber should be kept at a regulated temperature during the treatment, say sixty degrees of Fahrenheit, but well ventilated. Bed-curtains objected to. Convalescence carefully protected from exposure.

Catarrhal fever sometimes puts on a *typhous* or low character, more frequently in Europe and in large cities. In such cases, the hot bath, sinapisms, stimulants, and stimulant diaphoretics, with opiates, must be promptly and perseveringly employed.

In children, catarrhal fever takes on a modified character ; there is much gastric and intestinal disorder, the tongue is much furred and becomes ulcerated, so also the lips and mouth, the stomach irritable, the breath fetid ; the stools are dark green and offensive or thin and acrid, the pulse incalculably rapid, the thirst intense, the breathing

hurried and difficult, with great restlessness. In these cases the emetic is necessary, and will probably require repetition. The warm bath also is of service. The mild purgative must be perseveringly administered, alternated at night with an anodyne diaphoretic. If convulsions supervene, the cold douche to the head is useful.

TYPHOUS FEVER.—I use the adjective *typhous* here to indicate the groups of cases of which it is still disputed whether they are of identical character or not. While I approve highly of the disposition of modern pathologists to draw nice distinctions, I would still observe some caution, and wait until characteristic and uniform differences can be shown before I separate even in name, diseases obviously connate and closely allied, as I believe the several varieties of “typhus” to be.

A favorite arrangement of fevers among writers, from Cullen down to Good, contemplated three forms,—the *synocha*, as purely inflammatory; *typhus*, or purely nervous; and *synochus*, a compound of the characteristics of the two. According to the views formerly advocated, I regard all fevers as of this *mixed* or *synochus* form.

Typhous fevers may arise from any of the causes which produce debility direct, or from abstraction of accustomed stimuli; bad, innutritious, scanty food; cold, or fatigue long continued; deprivation of fresh pure air. These circumstances depress the energies of the sensorial system, and the symptoms of such depression are prominent. It is the famine fever of the Irish, prevails among the free blacks in the northern cities to a great extent, and in camps, jails, foul ships, and hospitals. It occurs upon southern plantations sometimes, from the filth of the negro houses; and a removal to new quarters is found both remedial and prophylactic.

Typhous fever is contagious; it is also endemic occasionally and epidemic.

It has been variously divided and subdivided. The old English writers distinguish typhus mitior or nervous fever, from typhus gravior or putrid fever; the more recent speak of simple, inflammatory, and congestive typhus, as mere grades, characterized by difference of intensity, and affecting in their progress different parts of the body in different modes. The French recognize many varieties, the simple, adynamic, ataxic, putrid, &c. There is still better foundation for the division into cerebral and abdominal forms. An essential distinction is by some writers maintained to exist between “typhus proper” or “*true typhus*,” and “*typhoid fevers*,” phrases which have now come to be

universally employed among medical writers, yet without sufficient definiteness. There is no agreement or uniformity in the views of those who argue most strongly for this essential difference of type. The characteristic distinctions most dwelt on, are a peculiar mode of intestinal lesion, and an exanthematous eruption; but it is not clearly settled to which of the varieties of this class of fevers, these symptoms are specially appropriate.

There is no class of cognizable cases in which the exanthematous eruption is of uniform occurrence. Chomel, writing of "typhoid affections," says it is wanting in about one-fourth of the whole number of cases. The intestinal lesions are not constant, any more than the exanthema, in any season, or in any special type; seeming to be referable to *locality* rather than to any other condition or circumstance. Armstrong and Lawrence have seen fatal cases without them. Andral recognizes a whole class of ataxo-dynamic fevers, "in which no lesion of the digestive tube exists." Lombard states the following facts. In Paris and Geneva, he found this lesion uniform, an essential element of typhus; in Glasgow it occurred not oftener than once in three cases—in Liverpool and Dublin in a still smaller proportion. In Birmingham he found it again uniform. In London, Dr. Tweedie says, it affects not more than one in four, varying with the seasons, and met with most frequently in autumn. Here it occurs often, but is by no means regularly present, and seems to me to depend on the protraction of the cases, rather than on any other contingency.

Prof. Bartlett, in his excellent work on Fevers, maintains ably the doctrine of the essential difference between the two forms. Yet, like his predecessors, he fails to prove the uniform presence of the characteristic symptoms in one class of cases, and the uniform deficiency in the other.

The typhus poison which produces them I believe to be identical. Its determination to the intestinal glands and mucous tissue, and the results of its deposition there and elimination thence, are common to all, though more pronounced in some instances and in some groups than others.

We may subdivide these fevers conveniently into four groups: 1. The simple typhus of Armstrong, the mild typhus, nervous fever of common phrase. 2. Abdominal typhus, typhoid fever, typhoid affection. 3. Cerebral typhus, in which coma or stupor is the prominent feature, the tendency to which indeed gave name to the whole class. 4. "Putrid fever" of common phrase, jail, ship and hospital fever. The first two come fairly under the head of typhus mitior, which will include the lighter cases also of the third: the fourth is the

typhus gravior of Cullen and the English generally, and will comprise some of the severer examples of the third.

All are contagious; the first three occur in country places and healthy situations; the last demands for its development a crowded and ill ventilated residence, and the presence of air vitiated in a peculiar manner by what Gregory styles the "crowd poison."—Ochlesis.

The cases are thus modified, but probably by an influence exerted on the predisposition of the subject, not by any change in the character of the cause, which is the same in all the varieties.

Cases beginning as simple or cerebral, are by protraction converted into the abdominal. We may, therefore, retain much of the old and simpler language and treat practically of them under two great divisions.

Each of them in an ill ventilated, crowded place, will become putrid fever. With Hildebrand, I believe in the convertibility of *all* fevers, by protraction and bad ventilation, into the typhous form.

Typhus mitior, vulgo, nervous fever, usually occurs sporadically, comes on slowly and very gradually; anorexia, with furred tongue, and unpleasant taste in the mouth precedes; there is chilliness, weakness, and languor, depression of spirits, oppression at precordia, sighing. The pulse is frequent, small and weak; the skin becomes hot and dry; there is headache, or vertigo, or light delirium. The duration of these mild cases is uncertain and may be measured by septenary periods. For the first and second weeks the bowels will probably be torpid and inactive; in the third, they begin to be disturbed and irritable, with diarrhoea, colic and meteorism. The stools are small, dark and offensive. The eruption, which has been regarded as characteristic, comes out in the second week, about the ninth day. It consists of minute rosered spots, circular, very little elevated, disappearing on pressure. Their duration is very uncertain. A very different cutaneous affection is often met with. Minute hemispherical vesicles, called sudamina, are found on the sides of the neck and in the groins and armpits. They are filled with a transparent fluid, and are more easily felt than seen.

Still later, and in the more unpromising cases, petechiæ appear. These are easily distinguished by the central red spot, caused by extravasation, which cannot be obliterated by pressure. When the patient is to recover, the symptoms above enumerated subside gradually, the skin is soft, the tongue pale and moist, and he sleeps calmly and refreshingly. Or, about the tenth or eleventh day, the muscular debility becomes great, with tremors or subsultus tendinum; the pulse is rapid, the tongue dries, is of a deep red hue, and chapped or cracked; the teeth and lips covered with a dark, tenacious sordes; gloom and

anxiety with muttering delirium supervene, with picking the bed-clothes and catching at imaginary objects in the air; coma, or brief convulsions precede death.

Prognosis generally favorable in this form of typhus; indeed, the proportion of recoveries is so great under all diversities of treatment, that many infer a preference due to the medicine expectante, which may, indeed, be said to be gaining ground among American physicians, who trust extensively to a careful regimen, good nursing, and an attentive supervision of the *juvantia et lædientia*. Yet under the most favorable circumstances they cannot hope for better success than is claimed at the Hospital Neckar, 90 per cent of cures, or la Charité 94 per cent; the treatment at the former being by daily purgatives, while at the latter, Bouillaud bleeds, coup sur coup.

Typhus gravior, vulgo, putrid fever, scarcely ever sporadic, spreads rapidly by contagion or epidemic influence. Commences with alternations of heat and cold, succeeded by a pungently hot, harsh, dry skin. The countenance is expressive of anxiety and distress; the face turgid, with dark red flush; eyes heavy and red, headache severe; mind disturbed and dejected; pulse small, hard, tense, frequent, irregular; tongue coated with thick brownish or yellow fur; gastric oppression great, with nausea and retching; bowels torpid for the most part.

In a short time, three or four days, the tongue becomes dark, red, clean, smooth, dry, cracked—mouth and teeth encrusted with sordes—pulse sinks, and is feeble and undulatory, and very rapid. Syncope on moving—subsultus tendinum—hurried respiration, with sighing and sobbing, or coma with slow and laborious breathing; breath fetid; petechiæ and vibices, hemorrhages of black blood—death from the fifth to the thirtieth day. Diarrhœa is occasionally an attendant of this form also.

Prognosis in typhus gravior, doubtful. All symptoms which betoken increased sensorial and vascular prostration are unfavorable, as stupor and insensibility to external impressions and irritations. Meteorism is not only a gloomy symptom, but a dangerous condition. It is of two-fold character. 1. A mere flatulent distention of the intestines with air; this may give rise to perforation of the bowels when ulceration of its tissues or softening is present. If painful it may destroy the patient by the irritation it produces; if painless, it shows a loss of sensibility in the parts, perhaps an impairment of their natural contractility. 2. Effusion of air within the peritoneal cavity. This has been denied, but may I think be reasonably inferred when the alvine movements go on, with discharges both of flatus and fæces, the distention continuing undiminished. This I have repeatedly seen.

On the other hand, reviving attention to these impressions, eruptions about the mouth, boils on every part of the body, a larger and fuller pulse, are favorable.

Autopsy.—In different cases different organs are found most affected. In some there is arachnitis; in others, effusion into the ventricles and upon the surface of the brain; in all there is vascular turgescence; a softening of some part of the brain is occasionally met with. The lungs are often found engorged, and sometimes hepatized. The abdominal viscera rarely escape injury, especially in protracted attacks; the mucous membrane of the stomach and intestines showing various conditions of disease, from mere vascular injection, with or without thickening and softening, to ulceration and even partial sloughing. This ulceration most frequently attacks the glands of Peyer, less so the isolated follicles; hence most commonly found in the ileum. I have seen them in the colon also, perforating in one instance the coats of a large vein, and occasioning death from hemorrhage, when the patient was apparently convalescent. Their presence is to be feared whenever we have an irritating, obstinate diarrhœa. They perforate sometimes through all the coats of an intestine. I once saw such an ulcer in the ileum. The patient after eating an orange, was suddenly seized with violent abdominal pains, and died in a few hours. On examination I found several pieces of the orange in the peritoneal cavity, which had evidently escaped through an ulcer of about one third of an inch in diameter, of ragged edges, situated near the lower end of the ileum.

Previous to ulceration the plates of Peyer are elevated by what Vogel calls the "typhus deposit," which closely resembles scrofulus or tuberculous matter. Rokitsanski maintains the existence of a typhus poison in the blood—"Typhosis" analogous to "scrofulosis," &c., which must be got rid of, thrown off, and in its elimination becomes thus the source of intestinal disease.

The blood is always morbid; if injected into the veins of a healthy animal it will produce serious disease, which healthy human blood will not. It sometimes contains urea, which has also been found in the brain and the serum of the ventricles, and is deficient in the renal excretion. The liver is sometimes, the spleen always friable, and grumous.

Treatment.—Some who regard typhus fever as an exanthem and self-limiting, advise us to abstain from all active interference. These characteristics are not proved however to belong to it, and I believe its course can be shortened, as well as the proportion of recoveries increased by judicious management. I object, as an eclectic, to any routine course, whether by V. S., or purgatives, or the antimonials, or

the mercurials, all of which may doubtless, be well adapted and useful in individual instances. If called early and in the milder cases, it will suffice to empty the stomach with an emetic, followed by a purgative. The best is the combination of merc. dulcis. and pulv. rhei. persisted in to a moderate extent for a few days. Diaphoretics may be given in the meantime, assisted by the tepid or vapor bath. We may unite both these purposes by the exhibition of an infus. cinchon. et serp. with sulph. magnes. in small quantity. A large proportion of cases occurring sporadically and under good nursing will need no more, nay many will require less than this extent of medication. We may desist from the use of all drugs and watch the patient. If the disease is obstinate, and his strength threatens to yield, we resort to calomel in proper doses as an alterative, while we employ stimulants freely. Wine is the best of them; should be given unmixed—white preferable, as Madeira and Sherry; Port may be chosen if the bowels are loose. Sinapisms and vesicatories must be applied, and in such succession, that the patient may be continually under their influence, as excitant and revulsive.

The mercurials do not seem to be well borne when there is much abdominal irritation, unless combined with opium. If this be contra-indicated we may prescribe with advantage the acet. plumbi in small doses. Here too the nitrate of silver is used with good effect. It disposes the mucous ulcers to heal, and seems to relieve tympanitis.

In the management of cases of *typhus gravior*, our task is a delicate and difficult one. Our urgent indications are to relieve morbid excitement and undue determination to vital organs, with the least delay, and the least subtraction from the vis vitæ.

We must as promptly as possible change the condition of our patient; give him good air; cleanse his body by the tepid bath in the most convenient way, and put him into clean bed and body clothes.

An efficient emetic may benefit him—the antimonial deserving a preference; if it do not move the bowels, it should be followed by a cathartic of pulv. rhei. and merc. dulc. Combined with opium the antimonial forms the chief reliance of Dr. Graves of Dublin, very high authority. It is best adapted in the cerebral form with coma vigil or restless disquiet.

Venesection seems so obviously forbidden by the great apparent debility, that it requires courage to resort to it. A moderate bleeding will sometimes be well borne and do service in young subjects of good constitution, if seen early, with tense pulse and vehement local determination. The topical detraction of blood is, however, generally to

be preferred. Leeches or cups should be so applied as to relieve the organ suffering most prominently.

The cold bath will be useful from time to time, if the skin is hot and dry. If cool and constricted, the hot bath should be substituted. In severe or threatening cases the mercurial treatment should not be omitted; it affords our best hope of safety. From 2 to 5 grains of calomel may be given every third hour under ordinary circumstances, guarded by astringents if there be tendency to diarrhœa. In very rapid cases the doses should be larger, 10 grs. or $\mathfrak{D}i$; the cathartic influence exerted is by no means increased in proportion. In the meantime, stimulant diaphoretics should be freely employed, as camphor, the volatile alkali, aided by wine whey and infus. serpentariæ. The vapor bath is often advantageous under these circumstances.

Opium is considered a doubtful remedy. I often employ, however, the camphorated tincture with good effect. Indeed I see no reason for the avoidance of opium, if indicated, as it often is, by intestinal pain and spasm, and diarrhœa. In very many cases I use it without hesitation, and so far as I am aware without injury and with decided benefit. Coma vigil, which perhaps bears to somnolent coma the same relation that somnambulism has to sleep, a very annoying symptom and one which not only distresses but exhausts the patient, may thus be relieved. It is often of great importance to procure a few hours of refreshing rest and repose, and there is nothing but opium available for this purpose. If the pupil of the eye be much contracted, it is advised to use belladonna instead of opium, as free from risk. Musk is also prescribed here and valerian.

Sinapisms may be applied extensively and frequently; but vesicatories, although they are often beneficial, yet embarrass us occasionally by sloughing, especially in the latter stages of protracted cases.

Wine is infinitely our best and safest stimulant, and should be given unmixed: it is important that the patient should take it with pleasure and in abundance.

When wine seems to fail of its stimulating influence, and the patient still sinks, we must resort to the various modes of administering ardent spirit. Of these, milk punch seems least irritating, and deserves a preference for its nutritious quality. In cases pertinaciously tending to a hopeless stage of prostration, we may resort to the tincture of cantharides, capsicum, and turpentine, which, though not the safest, are among the most active stimulants.

The mineral acids constitute agreeable drinks, quench the patient's thirst well, cleanse his mouth, and correct the fœtor of his discharges.

Meteorism demands attention. Enemata of assafœtida will some-

times relieve it. Camphor in substance and other aromatics are advised. Frictions with warm and stimulating oils are made on the abdomen. It is not safe to allow the bowels to remain constipated with this distention. Castor oil is the best purgative, if any be necessary.

In the abdominal cases, the Ilietis of some writers, I have derived most benefit from the administration of nit. argenti in doses of 1-8 to 1-4 of a grain every three hours with pul. dov. from 2 to 5 grains.

If perforation have taken place, which will be known by intense abdominal pain, and great distention, general prostration, with feeble pulse, and cold clammy perspiration, our only hope, and a very slight one, is to be found in the exhibition of large doses of opium, from 5 to 10 grains, or their equivalent, *pro re nata*, to keep the system quiet, and subdue the irritation. During the progress of healing of the ulcer, the strength must be supported by stimulants and fluid nourishment, the whey of milk, with strong soup or beef gravy.

In tedious cases, the parts pressed on as the patient lies in bed, must be relieved by all the arrangements employed in cases of fracture—the points of pressure must be changed and often gently rubbed. The body and clothes and apartment of the sick, must be kept scrupulously clean, and the latter well ventilated.

PNEUMONIA TYPHOIDES.—The form of fever which I treat of under this appellation, was noticed first in Massachusetts, in 1806, whence it spread northward into Canada, and southward until it reached the state of Georgia. It appeared in Philadelphia in 1813, in Charleston in 1815, and underwent in this course numerous modifications, from varying circumstances of locality and predisposition. Among common people, it was known as the “cold plague,” “spotted fever.” I have arranged it as a new and distinct disease; some contend, however, that it is a revival of the ancient “*febris petechialis*,” others that it is a mere typhoid form of influenza.

Causes.—It was justly, and indeed of necessity, in its first appearance and early progress, above alluded to, ascribed to a peculiar epidemic constitution of air; the modes of excitement being precisely those which give rise to attacks of, and predisposition to typhus, as low bad diet, fatigue, long exposure to cold and damp, bad air, &c. Negroes seem to be specially predisposed to it, perhaps from their constitutional inability to endure severe cold. The number of cases which we meet with, indeed, seems to be very directly proportioned to the severity of any given winter.

History and Symptoms.—The most common form throughout our country is that in which the tokens of pulmonary inflammation are prominent. It is ushered in by a chill, succeeded by pains in the head and chest of great severity. The skin becomes hot and dry—the pulse frequent, small, irregular in force—the respiration catching, or hurried and embarrassed, with teasing cough—there is great muscular prostration, with shifting pains in the back and limbs—the tongue is clean and fiery red. A degree of delirium exists often from the first, sinking soon into a low muttering condition. On the third or fourth day the tongue becomes coated with a dark crust, and dries—the teeth and lips are covered with sordes—the pulse grows weak and undulatory—from a sleepless state the patient falls into heavy slumbers, or is comatose—the breathing is more and more difficult, and death follows. Or about the 8th, 9th, or 10th day, his expectoration becomes freer—the anxiety less—delirium subsides—the pulse rises, becoming fuller and slower—a soft, warm moisture bedews the surface, and he recovers.

The *general prognosis* in this form of pneumonia typhoides is favorable. In individual cases the unfavorable signs are extreme anxiety and dejection, restlessness, debility, insusceptibility to external impressions, dyspnœa, and orthopnœa, with livid countenance, petechiæ and vibices, inattention to light, the pupil being fixedly dilated or contracted. On the other hand, cheerful hope, uniform warmth of surface, easy breathing with free expectoration, intelligent attention to surrounding objects, and pulse fuller and slower, are favorable omens. Exploration of the thorax should not be neglected, although the local affection is not of paramount importance. Of course the signs of extensive pulmonary engorgement, inflammation, lesion will indicate the degrees of danger from this source.

Duration usually from six to twelve days.

This form of pneumonia typhoides, is frequently modified in malarious districts, by combination with *gastric* and *hepatic* disorder. The first stage is characterized more distinctly by the tokens of open inflammatory excitement. The pulse is full and frequent, the tongue furred, with nausea and retching, pain in the chest and dyspnœa. This state does not last long, prostration soon following, with the symptoms recorded above.

The *anginose cases*, or those in which the *throat* was affected, were not unfrequent in the middle Atlantic states. There was in these, at first, slight soreness of the throat, with ordinary catarrhal symptoms. On a sudden, respiration became much impeded, and great prostration took place. The fauces and tonsils were of a dark mahogany hue.

The proportional mortality was very great, the patient in a short time irrecoverably sinking.

The *lethargic cases*, described by the Massachusetts physicians, as occurring among females, deserve notice. "There was universal deadly coldness, the skin as white as polished marble and smooth; countenance perfectly placid; pulse imperceptible at the wrist; action of the heart scarcely to be felt; respiration only by gasping, and that not frequent."

Sudden deaths, under anomalous and inexplicable circumstances, occasionally took place during the epidemic prevalence of the disease. Men died in the field, being seized when at work, and sinking before they could be carried home. Others again seemed to be taken off by the most inadequate ailments, "dying," as the phrase was, "of a pain in the foot, or in the ankle, or knee, or wrist." Children seemed to be exempt from its attack.

Autopsy. The thoracic viscera presented generally unequivocal marks of inflammation. Flakes of lymph were sometimes found attached to the surface of the heart. The lungs were frequently hepaticized.

The brain and its membranes showed similar determination and engorgement. Effusions of serum, of lymph, and of a sero-purulent fluid, were found on the surface and in the ventricles.

The abdominal viscera presented no regular appearances.

The blood was black. The odor of the dead body was sometimes less offensive than during life.

Treatment should vary with the form and circumstances of the case; these being much influenced by locality, the reports of remedial management, accordingly differ much. Venesection has been much trusted to, especially in our southern country in the first stage, by many physicians. Yet I have not thought it applicable except in few instances. An emetic is often used in the commencement with advantage, or an emetico-cathartic.

The stimulating diaphoretics were, however, the remedies most generally confided in—Dover's powder, carb. ammon., camphor, &c. Stimulants, both external and internal, should be assiduously employed.

In the anomalous cases described above, opium constituted the almost exclusive dependence of physicians, and was exhibited in very large doses; it deserves the highest confidence and the most unlimited eulogy. The mercurial treatment is recommended by the New England physicians; I have not found it necessary, however, in any case. One would imagine it best adapted in southern malarious regions.

The convalescence is slow, and for a long time imperfect. Various tonics have been recommended, of which many practitioners have chosen the preparations of arsenic. I prefer, however, the cinchona, placing even before the sulph. quinine, the compound infus. cinchon. and serpentaria, with some alkali.

SYMPTOMATIC FEVER.—May be defined as *obviously connected with local injury, derangement or irritation—and subsequent to or consecutive upon the local disorder.*

It may be distinguished into the *Continued* and *Intermittent*. I know of no remittent form of symptomatic fever, properly speaking. Symptomatic fever in both these types may be connected with the same local excitement—the former (in such case) always preceding the latter, being connected with *recent* injuries and acute inflammations; the latter taking its origin in *chronic* and *sub-acute* inflammations, and supervening upon uncured injuries of long standing.

Continued symptomatic is hence styled inflammatory; *intermittent* symptomatic has received the appellation of *hectic*, the fever emphatically of irritation.

Inflammatory symptomatic is the continued fever with which every surgeon is familiar, as following within a short period, wounds of soft parts, injuries of the head, fractures and compound dislocations. Here we have all the ordinary tokens which denote the presence of fever—hot dry skin; flushed and turgid face; red suffused eye; anxious countenance; tongue red and foul; thirst, nausea, and gastric oppression, headache, languor, muscular pain, occasional delirium, a pulse bounding, abrupt and frequent. The history of this form of fever is the greatest difficulty in the way of exclusive humoralism. It is not even pretended, as far as I know, that the incipient phenomena here imply any cognizable vitiation of the blood or the fluids. After a time, the proportion of fibrine is notably increased; but it is doubtful whether this is cause or effect.

Symptomatic fever arises also in connection with internal local inflammations, as pleurisy, hepatitis, sore throat. Indeed it usually becomes of paramount importance in all these phlegmasiæ, of which it forms an essential part.

It is subject to be modified by the seat of local affection, and the state of the constitution of the patient. In gastritis and enteritis, the fever is of low character or adynamic, with small pulse, great muscular weakness and prominent tokens of sensorial depression; in phrenitis and rheumatism, the strength is less impaired, the pulse full and

bounding, and the tokens of general vascular excitement are prominent. In erysipelas we may have either of those states, of high excitement, or of typhous prostration, according as the patient is of robust or feeble constitution, and is situated in a crowded, ill-ventilated hospital, or in the fresh, pure air of the country.

Of the treatment of this form of symptomatic fever, we cannot speak in this place without impropriety; we shall discuss it as we proceed, in reference to each special case.

HECTIC—*intermittent symptomatic fever*—is on the other hand, remarkable for this trait in its character, that it preserves its regularity of history and progress, without any modification of consequence from any circumstance whatever.

An *idiopathic hectic* has been spoken of by J. Hunter, Good, and Percival, but (as I believe may be shown) altogether inaccurately, and on no good grounds.

Hectic is connected with a vast number of external sources of irritation. The local disorder from which it arises, may be seated in any viscus, or part of the body—is usually of the inflammatory kind, and must have been of some considerable previous duration.

There is a single exception. I have not, either in reading or observation, met with any one instance of the supervention of hectic upon any form of disease affecting the *brain* or its membranes.

Nor is it modified by the peculiarity of function of the part thus affected, as other fevers are, being identically the same, whether based upon bronchial irritation, lumbar abscess, phthisis tuberculosus, or cancer uteri. The formation and absorption of pus is not, as was formerly thought, necessary to its production; it accompanies induration and obstruction of the mesenteric glands, and of the pancreas, and gouty and rheumatic and scrofulous swellings of joints without supuration.

The predisposition to hectic is specially developed in connection with the tubercular and scrofulous diathesis, and perhaps extends throughout the phlegmatic temperament.

When fully developed, hectic presents two paroxysms in the twenty-four hours, one coming on two or three hours before noon, the second eight to twelve hours later. There is sometimes, though perhaps not generally, a formed chill, succeeded by hot, dry skin, with burning heat at the soles of the feet and palms of the hands; pulse small, hard, tense, abrupt, and very frequent; there is great paleness of face, with a small circumscribed spot of florid red on each cheek; sparkling eyes, thirst, the tongue is smooth and red, as are also the lips and mouth, with sometimes light aphthous ulceration; the stomach retains its tone,

and the appetite and digestion are good, yet there is great muscular debility, and great emaciation; the nails are adunque, the teeth and sclerotica are of pearly whiteness.

The patient is usually cheerful and full of hope. I think however I have observed that this is only the fact while the digestive system retains its tone, and would regard it as diagnostic; always inferring disorder of the chylopoietic viscera, or some one of them, when the spirits are depressed.

The emaciation of the patient, even when he eats heartily, may be accounted for in two ways. Either the digestive function is directly impaired, which happens sometimes, with diarrhœa, &c., or the respiratory function is imperfectly performed—animalization and assimilation of chyle, which can be perfected only in the lungs, remain incomplete.

The stages of the symptomatic are less regularly exhibited than in the idiopathic intermittent. The day paroxysm rarely or never shows a sweating stage. The night sweats of consumptives, &c., are I think the termination of the night paroxysm.

Hectic usually supervenes with the access of the day paroxysm; to which is some time after added, the evening or night paroxysm—the first, then, being absent for a while; it again appears towards the conclusion of the case, and both harass the patient. I have, however, seen the hectic develope itself with the double diurnal paroxysm from the first.

Treatment.—In general terms, if the local affection whence hectic is derived be curable, our attention should be directed to its management. If it cannot be cured, but can be taken away, let it be removed surgically. If it can neither be cured nor taken away, we must aim our efforts at the reduction of the excitability and irritability of the patient, and at the diminution of the influence of the local irritation upon the system. Narcotics and tonics must, with these views, be resorted to. Of the first, opium, or some of its preparations, morphine, mur. and acet. morphine, narcotine, and denarcotized laudanum, will be the chief—prussic acid, spider's web and conium, have been recommended.

Of the tonics, cinchona is the best. The sulph. quinine may be used, or the infus. cinchonæ et rad. serpen. cum. carb. potass. vel sodæ.

I have succeeded in preventing the day paroxysm, not unfrequently with the combination of quinine and piperine, formerly mentioned. It does not, however, seem to exert a similar influence over the night paroxysm.

The metallic salts are much used, arsenic especially. The tinct. acet. æth. ferri, is a useful and agreeable tonic.

The mineral acids do something in restraining the debilitating night sweats and diarrhœa. The mur. tinct. ferri, I prefer, as combining the advantages of the last two classes of remedies.

Sulphur has been also employed, upon the analogy of its utility in idiopathic intermittents, but to little purpose.

Fresh air, exercise, change of place by travelling—these, when they can be borne, are incomparably the best tonics.

DISEASES OF THE ORGANS OF CIRCULATION.

Of the HEART—*Cardiac affections* show themselves variously—by pain in the left thorax at the seat of the disturbed organ—morbid sounds and impulses—dyspnœa—discoloration of visage and lips—œdema. Connected, as cause and effect, with palpitation and syncope—angina—hypertrophy and inflammation—ossification—sabulous or calcareous deposit—apoplexy and hemoptoe.

We should make ourselves familiar by auscultation and percussion with the usual space occupied by the heart; with its average force of impulse; and with the ordinary sounds resulting from its healthy action at different points of the chest. Then we shall be prepared to estimate properly the physical signs which denote its enlargement or displacement, its violent or defective efforts, and the mechanical impairment of its function occasioned by organic changes. The hand, the ear, and the solid stethoscope should be applied in the examination. The latter circumscribes and locates exactly the sounds heard—the bellows, rasp and saw sounds—the rubbing of opposed surfaces—the flapping or clacking of valves, &c. These terms are properly expressive and descriptive.

PALPITATION is sometimes a result of mental emotion; a symptom of nervous disorder; an effect of loss of blood. Follows the use of digitalis, and sometimes of other narcotics, occurs in dyspepsia and other anomalous gastric affections. Always demands attention. On exploring the cardiac region, we shall discover whether it is connected with organic change. If apparently idiopathic, may be relieved by prussic acid, musk, valerian and its combinations, especially the valerianates of zinc and quinine.

If symptomatic, cannot be removed without taking away the cause, but is much palliated by the above remedies.

SYNCOPE. *Leipothymia*.—Defined by Cullen—"motus cordis immixtus vel aliquamdiu quiescens." This languor or suspension of the circulating function, is the prominent point in its description or history.

Causes.—Among the *predisposing*, we may rank general debility from previous disease or suffering—constitutional mobility of fibre, both accidental and hereditarily transmitted. The *exciting* or occasional, may be arranged under three separate heads.

The 1st, comprising certain structural disorders of the heart, or of the large vessels or parts in the immediate neighborhood, which may mechanically interrupt and disturb the regularity of the circulation, as passive hypertrophy or aneurism, ossifications, effusions, &c.

2d. Such circumstances as depress the circulatory power, whether directly or indirectly—hemorrhage, inanition from want or from protracted disease, inordinate discharges, whether natural or morbid, the removal of the abdominal distention in dropsy, by allowing the blood to rush into the vessels from which it had been for some time previously expelled by pressure of fluid. Pregnancy presents occasional attacks of syncope, as giving rise to undue determination of blood to the uterus, leaving the cerebral vessels insufficiently supplied.

3d. Under this head I include those agents which make their primary impression upon the sensorial system—pain, sudden relief from great pain; disagreeable impressions not absolutely painful, as the effect of heat and bad air in crowded places, of unpleasant odors—or from idiosyncrasies, odors not unpleasant; the sight of disgusting objects; and many of the passions and emotions, as joy, grief, terror, horror, and impatience.

How these latter act is difficult to point out with precision; none of them are positively sedative in their operation. Cullen ingeniously attributes the result to a rapid and sudden exhaustion of the nervous energy. Perhaps something ought to be ascribed to the very inordinate cerebral determination, which undoubtedly follows the application of the above causes; this may be so exquisite and exclusive, as to leave the heart so far unsupplied, as to render its action languid or interrupt it. That such cerebral determination is an occasional coincident in syncope, is evident from the occurrence not rarely of convulsions from venesection, and in recovery from the fainting state.

Fainting comes on with an oppressive sense of weakness and languor, with paleness or lividity of the visage. The pulse is weak or ceases, the skin is cold, the eyes are turned upwards and half closed. The respiration is scarcely to be perceived, or there is gasping and moaning—the patient falls insensible. After an uncertain duration, the surface being in the meanwhile clammy, cold, and pale or livid,

the circulation is gradually restored, the breathing more distinct, sensibility and strength return. Recovery is attended with vertigo generally, and more or less nausea; there is sometimes vomiting. I have twice seen violent convulsions—*quasi* epileptic—in patients not subject to attacks of epilepsy, either previously or afterward, attend such restoration.

Diagnosis.—From apoplexy, distinguished by the paleness and coldness of the face and skin, the feebleness and quickness of the pulse, and the languor of respiration. From asphyxia, generally, by the history of preceding circumstances.

Prognosis, almost universally favorable. A few fatal cases are, however, recorded.

I am inclined to suspect that we should place here, some at least of the deaths ascribed to what has been called “simple apoplexy,” i. e. apoplexy without any traces of cerebral lesion. It has been affirmed, that *coup de soleil* is often “a pulmonary, not a cerebral apoplexy.” If so, may not the condition of the lungs thus alluded to, be owing to intense syncope?—the blood being congested in the thoracic vessels, because denied a passage through the inactive heart.

Treatment.—Modified by cause and condition of the patient. If syncope be produced by the first class of causes, above recited, a cure is not to be hoped for. As palliatives, physical repose must be enjoined, and mental tranquility; diet unstimulating, but moderately nutritious. Perpetual blisters or setons in the chest or arms are used; venesection and digitalis.

In cases of the second order—those namely connected with inanition—the patient must be placed in a recumbent position, so as to allow of a freer and more forcible passage of blood to the brain, now insufficiently stimulated—dash cold water in his face, apply ammonia and other pungent volatiles to his nostrils and eyes, warmth to the extremities, sinapisms, and other irritants—electricity and galvanism, if at hand. When recovering, give him some warm nutritious fluid, with wine.

The management of cases arising from the *third* series of causes, will be more nice and delicate. If the patient have been excited by the more violent passions, his pathological condition presents some of the contingencies noticeable in apoplexy, and it will be perhaps advisable, to take blood from the jugular vein or temporal artery, or at any rate, to apply cups and leeches to the temples and neck. If by the less vehement emotions, as pity or disgust, external irritants will probably rouse him, and stimulants and antispasmodics complete his restoration.

To prevent recurrences of syncope, the general health must be pro-

perly regulated by observance of a proper regimen and diet—nutritious but unstimulating aliment being preferable—and the use of tonics, the metallic salts and mineral acids—and above all exercise in the open air.

Women are much more liable than men to syncope; children are seldom seized with it; I have, however, seen several attacks of great violence and long duration in a child not more than seven weeks old.

ANGINA PECTORIS—*Syncope Anginosa*.—Sternalgia—Asthma dolorificum.—An obscure disease, probably an affection of the heart. Its nature not well ascertained. Spasm perhaps of the cardiac fibres, or of some of them—attended with great pain in the chest, and sense of suffocation and impending death—paroxysmal, recurrent.

Causes various. It is connected often, but not always, with the plethoric condition—sometimes with gout—rarely appears before middle age. Autopsies have exhibited diversified structural derangement of the heart and large vessels; thus the coronary arteries of the heart have been found ossified, so have the cardiac valves—hypertrophy concentric and eccentric—but none of these appearances are constant.

The earlier paroxysms brought on by violent muscular exertion, as in walking against the wind, or ascending a height; after a time, the slightest effort occasions a return of the habitual paroxysm, as in coughing, &c., until at last it invades without obvious cause.

History.—The first attacks, produced by severe exercise, cease as soon as the patient stands still; when it has become habitual, they may last an hour or even more. The pain in the chest is exceedingly intense, shooting across the sternum and extending down one or both arms (most commonly the left) to the elbow or wrist. There is dyspnoea, the countenance being pale or livid; the pulse varies much. A peculiar sensitiveness of surface is present, as in hydrophobia, and a paroxysm is produced by the impulse of air against the face. The patient always avoids the wind.

Prognosis unfavorable. Death not unfrequently occasioned by the violence of a paroxysm. The tendency to recur is obstinate, and the system sinks under a repetition of attacks. I have seen apoplexy occur at the termination of a paroxysm.

Treatment. During the paroxysm, if the patient be plethoric and of robust habit, and the case recent, bleed promptly and freely; apply revulsives of the most rapid and impressive character. Cold affusion is often useful. If he be, on the other hand, feeble, or the disease chronic and habitual, the most vehement stimulants are demanded, as ether, laudanum, brandy, sinapisms to the chest.

In the intervals we proceed with reference to the cause and condition of the patient. If there be organic affection of the thoracic viscera—regulated diet, rest, small bleedings, digitalis. If the patient be arthritic, the treatment of gout is required. If plethoric, endeavor to restore the balance of functional power and action—if debilitated, stimulate and revive him. Tonics are much employed. Exercises of gestation are well borne and highly useful; the metallic salts, the mineral acids and sulph. quinine are also serviceable. Much stress is laid upon the effect of revulsives and counter-irritants, as epispastics applied to the wrists and ankles, and setons and issues in the arms and the thorax. The pustular inflammation of tartrate of antimony, excited and kept up for a long time, is said to have been of great advantage.

CARDITIS.—Inflammation of the heart results from exposure to cold and harsh alternations of temperature; violent muscular exertions, and extreme fatigue; perhaps violent and repeated mental emotion; extension of pleuritis; metastasis or extension of rheumatism, of gout, of small pox also, it is said, and of plague: seated in the external investing membrane—in the internal lining membrane of the cavities and valves—in the substance of the organ. The history and symptoms differ relevantly to these localities.

1. **PERICARDITIS**—*Symptoms.*—Sharp pain, increased on motion and change of position; dyspnœa, with oppression and distress augmented by muscular action, or mental emotion; lividity of countenance; œdema, pulse tense and frequent.

Physical signs. Auscultation detects frottement from roughness of the opposed surfaces and cri de cuir; after a while, dullness of sounds with weakened impulse from effusion; percussion shows dullness of resonance extended unduly.

Diagnosis is not always clear. Copland gives a case which he mistook for gastritis, there being present, vomiting, hiccup, &c., which he ascribed to diaphragmatic pleuritis.

Autopsy shows redness of membrane with plastic lymph and adhesions; effusions of serum and pus.

2. **ENDO-CARDITIS**—*Symptoms.*—Oppression and anxiety; pain not severe in general; orthopnœa and dyspnœa aggravated by motion and emotion; irregular and frequent action of heart, and also of pulse, which is small and weak; occasional syncope.

Physical signs—bellows sound; rasp and saw sounds, from obstruction to the passage of blood acted on by the heart's systole.

Autopsy shows membrane reddened, softened, ulcerated, with patches

of lymph on it, and excrescences and vegetations on the valves, contraction of orifices and irregular adhesions. If protracted, these lesions affecting the valves, are inevitable and become prominent.

3. *CARDITIS* proper, inflammation of the heart's substance, is rare and not easily known. If acute is attended with fever, pain and soreness on pressure and turning, palpitation and syncope. The *physical* signs are not strongly marked. *Autopsy* is said to show abscesses or infiltration of pus, in the muscular tissue; softening with various changes of color, ulceration, perforation, rupture, gangrene. In chronic cases, the heart has been found indurated, with plastic lymph, cartilaginous and osseous change.

The *treatment* of cardiac inflammation when acute and active, must be prompt and efficient. Venesection carried to the extreme of constitutional tolerance; antimonials at first with purgatives and afterwards with opium; mercurials are urged by the best authorities. In the more chronic forms, resort to digitalis in full doses, colchicum when gout or rheumatism has preceded the attack; and the valerianates of zinc and of quinine. The diet should be carefully regulated, moderately nourishing and unstimulating, and the most perfect quiet of mind and body enjoined.

HYPERTROPHY, or morbid enlargement of the heart. *Symptoms*—Irregularity of circulation, frequent palpitation, sense of unduly forcible action of the organ with some dyspnoea, especially on muscular action; a pulse irregular, weak and small, when compared with the violent action of the heart.

Physical signs vary with the condition of the organ; if connected, as is too often the case, with valvular disorder, there is the bellows or rasp or saw sound; the pulse is strong and systole loud. Percussion shows dullness of resonance, extended in every direction, but chiefly upwards and towards the right clavicle, where the valvular sounds are most distinct.

Autopsy shows the heart enlarged sometimes to monstrous size. There may be dilatation of the cavities, without thickening of muscular substance, eccentric hypertrophy: or concentric hypertrophy—thickening of the muscular substance without dilatation or even with contraction of the cavities; or there may be both thickening and dilatation.

Cause.—Hypertrophy is most often the result of obstruction to the passage of blood out of the heart, by contraction of the orifices, or impediment to the action of the valves. The organ is, however, so

ready to respond to mental emotion of every kind, that it is sometimes hypertrophied by the repeated or protracted excitement of care, anxiety and all the agitating passions.

Treatment.—A careful avoidance of physical and mental disturbance ; a prudent unstimulating diet, in the young and robust an occasional bleeding ; a saline purgative ; antimonials and diuretics ; counter-irritation by an issue or seton ; digitalis in doses sufficient to control the frequency of the pulse ; opiates to give tranquil repose ; valerian and the valerianates especially of zinc and quinine.

ARTERITIS is very rarely idiopathic, unless the theory be true which regards it as the proximate cause of fever. In some symptomatic fevers, the inner arterial tunic has been found of a diffused dark redness. Suggested, but not on any strong grounds, as the cause of aneurism and ossification.

PHLEBITIS.—Rare also except as traumatic and in puerperal women. Lee and McIntosh say that it may occur in the male subject.

Treatment.—Local depletion by leeches and cups, and with fomentations along the course of the inflamed vein. The saline purgatives, antimonials, mercurials and opiates may be employed.

HEMORRHAGE may be here defined, a flow of blood from some part of the body, without wound or external injury ; apt to be considered a sign of rupture of some blood vessel ; this is, however, not very often the fact. Ulcers may corrode the coats of a vein or an artery, or they may otherwise lose their power of cohesion ; but usually the blood is poured out from an unbroken surface, by a sort of diapedesis or transudation not well understood.

Divided into active and passive. Cullen has placed hemorrhage among the pyrexia, regarding fever as an essential part of the definition of active hemorrhage. This is an error. Active hemorrhage frequently takes place unprecedented and unattended by fever. Yet it is most generally soon followed by a febrile exacerbation—a statement which is also true of what are called passive hemorrhages. Good has substituted the preferable phrases, entonic and atonic hemorrhages. The first occurs when the system of the patient is at or above the ordinary condition of strength or tone. Atonic or passive hemorrhage, when he is notably below this point, and in a weak and enfeebled state of general health.

Causes of hemorrhage.—Among the principal of these, *plethora* is much dwelt on by authors, and deserves a moment's consideration.

Plethora was looked on by the older writers as of several varieties; they recognized *P. ad molem—ad spatium—ad volumen—ad vires*.

Plethora ad molem contemplated the absolute superabundance of the vital fluid—hyperæmia. This I do not believe to exist in any case; though it is a favorite opinion of Andral and other justly celebrated moderns. *Plethora ad spatium* expressed the quantity in reference to the contracted state of the vessels. It may be questioned whether something of this nature does not form a part of the early history of congestive and malignant fevers, as shown by the oppressed pulse. *Plethora ad volumen* regards the supposed expansion of the blood itself. By some such effect on the actual mass, which is subject to the universal law of increase of volume with elevation of temperature, we account for the headaches of spring and early summer, apoplexy and insolation, as well as the frequent hemorrhages of that season. *Plethora ad vires* is a condition of the system in which the mass of fluids and the force of circulation are disproportioned to the tone of the vessels containing them, or to their power of resisting the impulse incessantly acting upon them. If in any part the integrity of the tissues of which the vessels are composed is impaired, they must then give way; hence the hemorrhages in diseased lungs, and from inflamed surfaces. Such degeneration of tissue, is among the most important predispositions to hemorrhage.

Its occasional causes, are in general, such circumstances as either excite or increase the force of the circulation, and such as give rise to strong local determinations—running, leaping, violent passions; all stimulants under the first head; under the second, cold, heat, their alternations, diminution of atmospheric pressure, as at great heights, external violence, improper postures of the body, ligatures, undue employment of certain organs, as among goldsmiths and musicians.

Hemorrhage may occur from either arteries or veins; in early life, the blood is usually inferred from its florid color to be arterial—in old age, venous. Each of the individual hemorrhages seems to be more specially incident to a given stage of life; epistaxis in childhood, hemoptysis at puberty, menorrhagia, H. proctica and H. cerebri in old age; scrofulous constitutions most liable to them all.

The premonitory symptoms of hemorrhage, the phenomena which immediately precede its appearance, are analogous with those which denote the presence of inflammation. The part from which the blood is to burst forth, is affected often with a sense of heat, throbs and suffers

pain of some kind, usually sharp and pungent ; there is also a feeling as if it were swollen and heavy.

The hereditary transmission of hemorrhagic tendencies is not denied ; and numerous examples are on record, in which whole families are thus affected in successive generations.

Hemorrhage is remarkably liable to recur, and in many cases observes a regular periodicity of repetition. This is, by many, attributed to lunar influence, and with much plausibility. Hemorrhage was anciently regarded as a salutary effort of the *vis medicatrix naturæ*, to save the system from worse evils ; and this notion is even now prevalent concerning two of its forms—*epistaxis* and hemorrhoidal discharges of blood. The utmost that can be made out in favor of this notion is, that one disease is thus substituted for another ; hemorrhage is no less a disease, and requires proper management to avert serious and even fatal consequences.

All hemorrhages may thus be vicarious or revulsive, as is often noticed in cases of obstinate amenorrhœa. They may burst forth from any part of the surface of the body, as from the mamma, the finger, or as I have myself seen, from the skin of the cheek just below the eye, at that part which is so often discolored in sexual diseases of females.

Particular Hemorrhages.—*Epistaxis* or bleeding from the nose, often preceded by headache, vertigo, flushing of the face. Cold should be applied to the surface, either generally or partially, and determination to the head relieved by the lancet if necessary, and saline purgatives. If it is apt to return, a blister should be applied occasionally to the back of the neck, or a seton introduced there.

Bleedings from the *gums* and *fauces* are sometimes very troublesome, and afford us an opportunity of remarking—1st. That hemorrhage is often a simple transudation ; I have seen blood issuing from the whole surface of the mouth, gums, tongue, &c., without ulcer, or erosion, or wound of any kind.—2d. That the unmanageableness of hemorrhage, when it is of embarrassing obstinacy, or recurs frequently, is owing sometimes to a loss or impairment of the coagulating quality in the blood. I do not affirm this to be always true, but I know it to be occasionally so. Cold and astringent washes will generally check the discharge. The most efficient application, is a strong solution from $\mathfrak{Z}i$ to $\mathfrak{Z}i$ in an ounce of water of the *nitrat. argenti*. It may be used as a wash, but in obstinate cases it is best to soak in it pledges of lint and aid its action by pressure.

Hemoptysis, or spitting of blood. Rarely occurs as a primary disease ; but for the most part, attends upon inflammatory and scrofulous affections of the respiratory organs and their tissues. It may happen,

however, in individuals whose lungs are not impaired in structure—hemoptysis plethorica. Hemoptysis generally follows puberty, and takes place between the 16th and 30th years of life.

Diagnosis.—The blood is thrown out from the mouth after coughing or deep hawking or expectoration, frothy, and of a bright florid hue—there is usually pain or heat and weight in some part of the thorax.

Prognosis.—Not usually attended with great imminent risk. Few bleedings from the lungs are so profuse as to kill at once, but it may happen. In general the danger arises from the previous condition of the patient, whose prospect is gloomy, if he have labored under any chronic pulmonary disease, whether bronchitis or pneumonia proper. There is much less to fear—indeed, there is no great reason for dread, if he be free from previous disease of the thoracic viscera.

Treatment.—If hemoptysis be entonic, the pulse firm and strong, and especially if febrile symptoms attend, venesection should precede other remedies. The lancet must, however, be employed with caution. Much harm has been done by its rash and indiscriminate use. A good domestic prescription is the administration of common salt, which may be taken largely, and is often promptly efficient in checking the flow of blood, which it does probably by stimulating the extensive surfaces of the pharynx, esophagus, and stomach, and thus deriving from the neighboring thoracic vessels. It is also serviceable by nauseating, when taken abundantly. Other nauseants are exhibited with benefit—ipecac, especially, which I prefer—tart. antimon. and the sulphate of zinc.

As sedatives, the nitrate of potassa and digitalis are often resorted to. Some have ventured on cold applications, but this is attended with much doubt and risk.

The acetate of lead is prescribed here as an astringent, and is undoubtedly useful in cases of a chronic character. When combined with opium, to diminish irritation, and with ipecac, so as to produce slight nausea, it is among our very best formulæ.

Revulsion must be attempted vigorously. Sinapisms and blisters should be applied to the chest and limbs, and the former may be kept under the perpetual irritation of vesicatories, or of the tartar emetic ointment.

Cough may be allayed by demulcents and opiates. Strict silence enjoined—the diet kept very low—and the patient, for a time, remain perfectly at rest.

In atonic hemoptysis, we must modify our treatment, by abstaining from venesection, and allowing a freer and more nourishing diet. Here, opium may be given pretty largely; and the muriated tincture of iron

will be found serviceable as a tonic and astringent. Absolute silence must be advised.

Hematemesis, or vomiting of blood. Blood thrown up from the stomach is grumous, dark, clotted, and mixed with mucus, and other contents of that viscus. The discharge is often preceded by gastric uneasiness and oppression, with faintness and nausea, and sometimes heat or a pricking pain. These symptoms, with the absence of cough and other respiratory disorder, readily distinguish the disease from hemoptoe.

Causes obscure. Intemperance predisposes to it; brought on by external violence, by straining to vomit, by obstructions to abdominal circulation, as in pregnancy and in disorders of the liver and spleen, and by the suppression of some accustomed evacuation, as of the catamenia in woman, and the hemorrhoids in men.

Prognosis.—Not generally attended with great danger.

Treatment.—If entonic, with pain and heat of epigastrium and hard pulse, venesection and the epsom salt should be resorted to, and the bowels freely operated on. Cups or leeches should be applied to the epigastrium, which should afterwards be irritated by sinapisms. It is more frequently atonic however; the pulse is feeble, and the whole frame debilitated, and requiring a very opposite management. Stimulants and astringents are required. Small draughts of brandy and water may be given—acet. plumbi in moderate doses administered with opium; the tinct. mur. ferri is also useful; a vesicatory should be applied over the stomach without delay, to prevent a return. The infus. cinchonæ, with any of the mineral acids, may be taken, and a generous diet allowed.

Hematuria, or discharge of blood from the urinary organs, though not of frequent occurrence, will sometimes fall under our care. It is generally brought on by accident or violent muscular exertion. The most obstinate case which I have seen, was regularly produced by coition.

This hemorrhage generally requires, and is readily managed by venesection, mild cathartics, cold applications to the pubes, and perseverance in a recumbent position. If tenacious, we may use the acet. plumbi, and the tinct. mur. ferri as astringents.

Hemorrhagia proctica. Discharge of blood from the anus is of very rare occurrence, idiopathically, being for the most part an attendant upon hemorrhoids, dysentery, &c. I have met with three or four cases of spontaneous flow of blood from the anus, however, when there was no hemorrhoidal tumor, and the bowels were otherwise apparently in a healthy state.

Besides the remedies enumerated under the former head, you will find much advantage here in the employment of cold and astringent enemata.

PURPURA—occurs in two forms, purpura simplex and purpura hemorrhagica; both of which have been classed among eruptive fevers, (Willan,) both under the head of scurvy (Good.) They are not very closely allied; but hemorrhage is a symptom common to both.

1. **PURPURA SIMPLEX** is a *subcutaneous hemorrhage* petechial, maculous, implying as little change in the blood or general system as any other. The sanguineous spots may be as small as insect bites, very numerous, usually in patches. I have seen them prettily defined, circular, as large as buckshot, black or dark blue, scattered over a clear, healthy looking skin, attended with no sensations of ailment or discomfort. Sometimes there is febrile excitement with flushed cheek, headache, furred tongue, pain of stomach and nausea, with slight epistaxis or hemoptoe.

Prognosis favorable. It is said never to degenerate into purpura hemorrhagica, whence we may infer them to be specifically distinct.

Treatment.—The mild purgatives, with low diet, rest and opiates, if pain be present, are usually sufficient. In women tonics may become necessary. Iron is best, or cinchona, or sulph. acid. arom.

2. **P. HEMORRHAGICA**. This is neither a mere hemorrhage nor a true cutaneous affection, but a severe form of cachexy. It consists in a universal vice or perversion of nutrition; both the blood and the solid tissues undergo notable morbid change; a general hemorrhagic tendency prevails, too; the surface shows extensive and diffused ecchymoses; the gums are spongy and ooze blood continually; there is hæmaturia, and often intestinal bleeding. The blood is defibrinated, yet sometimes buffy, and the serum is of pink hue; there is great pain in the joints, in the muscles and in the ecchymoses; great muscular debility; feeble frequent pulse, thirst, sometimes constipation of obstinate character; sleeplessness, low fever, with delirium.

Prognosis, doubtful, duration indefinite; convalescence tedious and irregular.

Diagnosis—Distinguishable from scurvy only by cause and treatment—both of which differ widely; symptoms closely similar.

Cause unknown. Has no reference to diet or mode of living. I have seen it as often in the rich as the poor—in the temperate as the intemperate.

Autopsy. Every vein contains a dark blood by which it is discolored;

there is extensive softening of the mucous and parenchymatous tissues; the spleen is large and friable.

Treatment.—Venesection is boldly advised by some physicians. I have never practised it. Purgatives necessary to relieve the usual constipation. I have preferred the resinous repeated pro re nata. Diuretics are useful; I have found the acct. potass. with colchicum of service. Turpentine has been recommended. Tonics and astringents must be perseveringly exhibited—cinchona, gallic acid, or tannin, elix. vitriol, iron with or without myrrh, tinct. ferri mur. Opium is indispensable on account of the severe suffering increased at night. Nutritious diet must be allowed and stimulants sometimes. Local applications—baths, alkaline and acid, hot and cold, are urged. I have found simple tepid fomentations most solacing.

SCURVY—Less known than formerly, owing to diminished length of sea voyages and the great improvement in sea diet, by the introduction of fresh and well prepared meats and vegetables.

It consists, like purpura hemorrhagica, in a peculiar vice of nutrition with morbid alteration of the blood and all the solid tissues. There is sponginess of the gums, which bleed and slough from the teeth, with great fetor of breath, extensive ulceration, and exfoliation of alveoli. Ecchymoses appear extensively; there is great pain of the bones and joints with stiffness and painful induration of the muscles; extreme lassitude attends, with languor and prostration; the heart beats feebly; the pulse is small and weak; there is thirst and sometimes low muttering delirium; the surface is cold and pale with cutis anserina or Adamantous swelling; old wounds break out; ulcers bleed and slough; there is headache, constipation, thoracic constriction, with panting on the least effort—death supervenes at uncertain period.

Prognosis is unfavorable, if the circumstances cannot be changed which have brought on the disease.

Cause usually traceable; in general terms, a meagre, innutritious, restricted diet, aided by depressing contingencies affecting either the body or mind; of these nostalgia is the chief. Hence most common at sea—though not unknown on land, as in armies, sieges, penitentiaries, &c. Mistakenly attributed exclusively to salt meat, which undoubtedly may produce or predispose to it. But recently in King's expedition, it attacked the Beagle and Adventure in spite of abundant and well varied diet, lime juice, &c.

Milman gives cases of patients living on tea and bread. Dunglison tells of one who was on vegetable diet.

Diagnosis—Not easily separated when occurring on land and in a single instance from purpura hemorrhagica.

Autopsy shows purulent and sero-sanguinolent effusion in lungs and pleura—the heart sometimes softened, the spleen enlarged, brittle and granulous; the bones and joints carious and corroded; the blood dark, incoagulable, defibrinated.

The *treatment* chiefly consists in a removal of the causes as far as possible—*causa sublata tolitur effectus*. The diet must be varied—the mind cheered with hope. Nutritious specifics are eulogized, lime juice, a solution of nitrat. potass. in vinegar; all acid and subacid and green fruits and vegetables—all fermented drinks—all the mineral and most of the vegetable acids of the laboratory—fresh meats and those prepared in the modern mode—all fermented liquors, ales, wines, beers, yeast and carbonic acid in every mode. Chloride of soda, cinchona and quinine have been eulogized. Garrod, taking the purely chemical view, ascribes scurvy to the want of potass. in the fluids and solids, and rates the remedies as available in the order in which they contain this alkali. The Irish potatoe stands first—grated or partly cooked, unpeeled. The mouth must be washed with myrrh, bark and the mineral acids. Purgatives, the mildest, are exhibited *pro re nata*, for the removal of constipation; kino and other astringents if diarrhœa supervene, and opium prescribed freely for the relief of pain and sleeplessness. The foul ulcers are to be dressed with yeast and charcoal poultices, and washed with the chlorates and nitric acid.

The *prophylaxis* is to be inferred from the treatment.

A varied and nutritious diet, comprising many of the articles enumerated, must be allowed, with fermented drinks somewhat stimulant, as wine, ale, porter; rich in carbonic acid and aromatic, as spruce and sassafras beer. The Dutch in their voyages, have enjoyed a remarkable exemption from scurvy; this has been attributed to sour krout, of which they consume so much. I ascribe it rather to their national phlegm, or freedom from anxiety and impatience.

Men should be provided always with a cheerful variety of occupation and amusement, and nostalgia relieved by as speedy a return homeward as possible.

Cook's success in preventing scurvy was wonderful. In a voyage of 3 years and 18 days, he lost but one man out of 118. He used malt, sowens, sugar, French acid wines and sour krout.

HYDROPS.—*Dropsy* is generally assigned to consist in a preternatural collection of serous fluid in one or more of the cavities of the body

or in the cellular membrane. The definition is thus taken from a single symptom, but the pathology of the disease is exceedingly obscure.

Dropsies may be *local* or *general*. By the first we mean a collection of fluid in some part, without disorder of the general system or farther extension of the effusion of fluid. General dropsy is a phrase which implies the existence of hydropic diathesis—that is, the tendency to effusion of fluid everywhere—with the actual presence of some collection. Hydrocele is exclusively a local collection of fluid—so is ovarian dropsy—so, for the most part, hydrocephalus. Anasarca may be an insolated or exclusive affection. On the other hand, ascites is almost invariably connected with, dependent upon, and symptomatic of general hydropic diathesis.

It is usual to account for the accumulation of fluid in these cases, by the supposition that the natural and healthy correspondence between exhalation and absorption is interrupted—impaired either locally or generally. Some maintain an undue excitement—some a relaxation of the exhalent vessels, or a morbid exosmose; others suppose an imperfect action or condition of debility in the absorbents; but there is an almost universal accord in the doctrine that the fluid accumulated, is the same which is thrown out in health by the exhalents to lubricate the surfaces, as the phrase is, of the cavities. The correctness of this view of the matter is rendered doubtful by the fact, among others, that the cellular tissue is the frequent seat of hydropic effusion; while it is not alleged that in a state of health its cells contain any fluid whatever.

The *causes* of hydrops are very various. Among them are enumerated both hyperæmia and anæmia, general plethora, debility from whatever source, whether low innutritious diet, bad air, or previous disease, great losses of blood or other evacuations, and intemperance chiefly. Many diseases give rise to dropsy: this is remarkably the fact in reference to scarlatina—it is true also of peritonitis, tympanitis, hepatic and splenic affections, and perhaps of small pox and influenza; it follows sometimes the abuse of powerful remedies, as drastic purgatives, mercury, iron, and the vegetable acids.

Hydrops is connected both with the *entonic* and *atonic* states of constitution, which, therefore, it would be well to substitute for the old terms *acute* and *chronic*.

Prognosis in general dropsies unfavorable, as would be readily inferred from the perusal of bills of mortality everywhere. It depends upon the previous state of the patient, and his habits, upon the form which it assumes, and upon the locality of the effusion.

Dropsies, which are among the ultimate manifestations of a cachectic condition of the body, are almost of course incurable; such is the state of the sot. On the other hand, we have much hope of removing such as occur from whatever cause in a system but lately vigorous and healthy; as when dropsy comes on from any one of the exanthemata or other recent malady, or from a transient exposure to some morbid influences. Entonic dropsy is for the most part more easily managed than its reverse, for obvious reasons.

The locality of the effusion seems to be of importance in reference to the organ, with the performance of whose function it may interfere. If such function be important to be performed vigorously and without interruption, the danger is of course great, as in hydrocephalus. Hydrothorax also presents a similar character.

The worst prognosis is, however, to be drawn from the manifestation of a general or universal diathesis by the concurrence of several effusions in different localities. In such cases, although you may relieve the patient of the accumulation, and in various modes procure the discharge of the fluid, yet this is far from a cure of the disease, which remains obstinate and will show itself by the renewed accumulation of the same effusions until the patient can sustain it no longer.

The *morbid anatomy* of dropsy deserves attention. If the hydropic affection have been general, the cavities of the body contain a watery serous fluid which is indeed diffused through all the tissues. The very fibres of the muscles seem sodden in it, and water will continue to drip from them for a long time, if taken out and hung up. The cellular structure is abundantly injected with it. I have seen the heart itself flabby, pale, soft, as if soaked or macerated.

In hydrocephalus the effusion may accumulate in the ventricles, or poured upon the surface of the brain externally. In the former the brain will be spread out, and in the latter condensed and small. Dr. Wistar saw it distended like a bag, against the cranium, not more than one-eighth of an inch thick; and it has been found not larger than an egg, lying on the base of the skull.

The fluid collects in the pericardium, in the pleuræ, and in the substance of the lung. From its pressure, absorption, or perhaps rather condensation of the lung may occur; I have met with it smaller than a man's fist.

In ascites the effusion is always connected with obvious signs of hepatic disease, enlargement and obstruction. The spleen may be in the same condition. The kidneys are often and variously diseased. I have seen them full of hydatids, or bodies closely resembling hydatids.

Treatment.—This must depend upon the condition of the patient, and

the obvious or probable cause of the access of the disease. In the entonic forms of dropsy the lancet must often be used freely ; drastic purgatives are much employed—the saline and vegetable diuretics—the antimonials and mercury, as diaphoretics and alteratives; and when the undue vascular excitement is reduced, various tonics, bark, iron, wine, are resorted to.

On the other hand, in asthenic subjects, tonics and stimulants are at once prescribed, and every effort made to reanimate the enfeebled functions.

ANASARCA.—*Hydrops Cellularis*.—One of the most frequent forms of dropsy, consists in a collection of serous fluid in the cellular tissue. This infiltration often occurs in a local or partial state, when it is termed edema, as in old age, in the last stages of phthisis, and in many other diseases ; and not uncommonly in the debility of early convalescence from severe maladies.

A pale swelling of the lower extremities, easily pitting upon the application of pressure, unattended at first with any heat or soreness of skin, is the first symptom of anasarca ; the intumescence becomes more general, until the cellular tissue everywhere is filled with fluid, giving to the countenance a heavy and flabby expression, and impeding all the movements of the body. If not relieved, the distention of the skin increases so as to produce inflammation, ulcer, and gangrene—large quantities of serum being thus discharged.

These symptoms are attended with languor and a general feebleness and inactivity ; the surface is harsh and dry, the thirst considerable, the tongue often foul, and the appetite and digestion impaired.

Anasarca may be either *entonic* or *atonic*. In the former case the pulse will be quick and hard, and the skin above the usual temperature. In the latter, which is by far most general, we have an opposite condition of the circulation, and the skin is cool or even cold. The urine is usually small in quantity, and high colored. The bowels are costive.

Causes.—Anasarca is connected with a great variety of circumstances, which are thought to have given rise to it ; mere debility of circulation, as in cases alluded to above ; inflammatory affection of the subcutaneous cellular tissue, as when it follows the exanthemata, scarlet fever especially ; visceral obstructions. Some writers describe an acute or sudden anasarca, connected with pulmonary disease ; a diseased state of the kidneys is probably a frequent attendant or cause of cellular dropsy.

Prognosis.—If occurring alone, and in constitutions previously

healthy, anasarca is readily curable ; under other circumstances, the prospects of the patient are unfavorable.

Treatment.—This must vary obviously with the causes of the attack, and the condition of the patient. In the entonic or excited state of the system, the lancet is used freely and with much advantage. Drastic purgatives are also employed ; jalap with supertartrate of potassa, and such generally as procure thin and watery evacuations, hence called hydragogues. Of these elaterium, scammony, colocynth, and gamboge, are recommended. These I employ rarely ; they are violent and irritating, but active and efficient, and cannot be dispensed with from the materia medica. They must be used cautiously in small and repeated doses. The epsom salt is serviceable, and may be combined with the other formulæ prescribed.

Emetics are often serviceable in anasarca, and when we have, as is not unfrequently the fact among the very poor, a pale foul tongue, and a stomach much disordered by bad diet and irregular habits, we shall find advantage in vomiting occasionally excited. Ipecac, and tartrate of antimony may be used separately or combined. The emetic is required to be frequently repeated in the case of those who eat clay or dirt, a habit apt to be productive of marasmus and anasarca, among negroes on southern plantations.

Diaphoretics are also employed. The polygala seneka and the serpentaria virginiana are much prescribed among us, and constitute, in infusion, good bases for serviceable formulæ. They combine well with the nitrate, tartrate and supertartrate of potassa, and other salts, both cathartic and diuretic, while they act as very efficient diaphoretics. The antimonials have also been highly eulogised. Dover's powder, when no contra-indication is presented, is among the best of this class of remedies ; and indeed I would lay much stress upon the free use of opium in most cases of dropsy. Whenever attended with great general distress, irritation, restlessness, and sleeplessness, this medicine is indispensable.

Diuretics have been promiscuously employed in all dropsies, and most unduly extolled. The original notion of a direct dependence of the accumulation of fluid upon a diminished urinary secretion, led to this practice, which has seemed to be supported by the alleged observations of Blackall upon the changes in urine, connected with the presence of dropsy, and the remarks of Bright and Christison upon the frequent co-existence of disorganization of the kidney. I do not conceive any medicine to be useful in dropsy, merely by promoting urinary discharges. All remedies which are successful in their application to the various cases, produce, as in the treatment of fever, an increase of this as of

the other excretions. Thus the lancet, mercury, opium, the antimonials, all give rise to large discharges of urine, when used with judgment. Digitalis is the object of almost unanimous preference among the diuretics, specifically so called. Yet there is no satisfactory proof of its direct diuretic influence. I use it extensively in pulmonary and other diseases, without observing any such operation. Of the squill the same may be said, as also of tobacco.

A great number of articles are prescribed under this head. The nitrate, acetate, and supertartrate of potassa, the vegetable acids, horse-radish, and parsley, are among the best.

The *eryngium yuccifolium*, or button snake-root, and the *colchicum autumnale*, deserve also to be exhibited.

The *tonics* are entitled to much confidence in a large class of cases.

Among our negro population, anasarca usually occurs of low and depressed character, and connected with a very cachectic state of the body. Here cinchona is our best remedy, and is very often sufficient in itself for a perfect cure.

Iron is also extensively used and much confided in. So also the vegetable bitters. The cold bath is serviceable when it can be borne. To evacuate the fluid, distending and irritating the integuments, scarifications should be made from time to time, in the most depending part, with the point of a clean and sharp lancet. If these little wounds ulcerate, or indeed of choice, acupuncture may be substituted, and will often answer very well, the needle giving discharge to considerable quantities of serum, and thus bringing great relief to the patient.

ASCITES.—A collection of serous fluid within the cavity of the abdomen. Its presence is marked by a gradually increasing equable swelling of the belly, attended by a sense of weight, and usually with perceptible fluctuation. The general health is much disordered. There is in almost every case more or less febrile excitement, thirst, with harsh dry skin, diminished urine, drowsiness and languor: the tongue is foul, the appetite and digestion disturbed, the bowels costive, the respiration impeded from the upward pressure of the diaphragm; after a short time, anasarca ensues, and sometimes hydrothorax.

The *diagnosis* is important, but not always easy. It is to be distinguished from pregnancy in women, from tympanitis, from physconia or visceral enlargements, and from ovarian and encysted dropsy. We must consider, in relation to the first, the signs, as they are called, of pregnancy. Where these are altogether wanting, and the other tokens

of hydropic diathesis present themselves, the inference is clear; unfortunately these two states sometimes occur together, and are confused.

Tympanitis is distension without weight—it is tense and resounding.

Physconia is slower than ascites, for the most part, in its increase, and is irregular in form, and not equable in the swelling it occasions. So also of encysted dropsies, which are, besides, unconnected with notable disturbance of general health.

Causes.—Ascites is rarely idiopathic, in the primary or independent sense; it is generally connected with visceral disease, hepatic, splenic, nephritic. It may be developed suddenly, as in a case related by Darwall; two of a similar nature occurred to Chapman; and I have seen an instance following in a few hours upon dysentery and preceded by very transient tympanitis.

Prognosis is generally unfavorable; but we should refer, in particular instances, to the cause, and to the previous state of the patient. If entonic, and unaccompanied by anasarca or hydrothorax, recoveries from ascites are not unfrequent.

Treatment.—Besides the remedial management generally instituted in anasarca, and equally well adapted here, we must lay no little stress upon the exhibition of mercurials, on account of the ordinary dependence of ascites on visceral obstruction. They should be administered slowly and in small quantities, and in combination with the other remedies indicated. Ptyalism should be avoided, as irritating and injurious.

The propriety of paracentesis has been a matter of some dispute. I should not hesitate to resort to the trocar, to relieve the patient from the distress produced by distention. Pressure applied carefully after the belly is thus emptied, has been found useful. The bandage should be applied uniformly and with assiduous attention. Tonics and exercise are indispensably necessary to a cure.

HYDROTHORAX.—Collection of serous fluid within the cavity of the thorax; sometimes called *hydropleura*, as the serous collection is usually within the sac of the pleura.

Some vague dispute has been held, whether dropsy of the chest is ever an idiopathic affection, and a few writers have unhesitatingly considered it as the mere result of pleuritic inflammation. This I regard as an error. Accumulations of fluid within the thoracic cavities, indeed occur from inflammation of the membrane, but are readily to be distinguished by previous symptoms. Besides this, they rarely affect more than one side, and are not attended with anasarca or ascites.—

Hydrothorax, which is connected with general hydropic diathesis, and which exhibits, without previous tokens of pneumonia or pleurisy, proofs of effusion, I treat of as one of the forms of idiopathic dropsy.

It is the disease of advanced life and of broken constitutions, for the most part. There is a notable paleness of the face, dyspnœa, inability to go through any muscular exertion, orthopnœa. The general health is impaired, as in the other varieties of dropsy; there is a short dry cough, great restlessness at night, with occasional paroxysms of threatened suffocation. Anasarca, if not early present, almost always attends in the course of the malady; and ascites is also often added.

The *diagnosis* requires care. We dwell on the dyspnœa and orthopnœa, so apt to come on with extreme severity in nocturnal paroxysms. There is often palpitation of the heart, with irregular and intermitting pulse, great anxiety and despondency. Exploration of the chest displays increase of fullness, on one side sometimes, with loss or diminution of capacity for making a full and deep inspiration. On percussion a dull sound is returned. There is loss of respiratory murmur over a portion of the chest. In exploring we should carefully note the relation of this dullness on percussion, and the impairment of respiratory murmur, to the position of the patient. If owing to the presence of fluid in the cavity of the pleura only, they will be more notable at the lowest parts of the thorax, and change places when he rises and reclines. Fluctuation is said to be but rarely perceptible. Bichat proposes, as a test, pressure on the abdomen, which increases very much the sense of suffocation.

Causes.—Those of dropsy in general, already enumerated.

Treatment.—Must be guided by the principles already laid down, as applicable to the other varieties of the disease. In the entonic form, the lancet should be used freely to subdue morbid excitement; but it should be recollected, that we must not make the pulse our exclusive guide in the resort to venesection, as it often remains unaccountably hard and full to the very last moment of life in hydrothoracic patients.

The employment of purgatives has been vehemently objected to. I would administer them in just such cases as require venesection, but with some caution. Nor must we expect the same obvious good effects from them as in ascites.

The diaphoretics, antimonials, seneka, &c., must be exhibited, as has been already advised in the analogous cases.

Diuretics are regarded as here specially applicable, and to digitalis is assigned the first place. Squill is useful, both in this way and as an expectorant. The solution of supertart. potass. or an infusion of common parsley, may be used as ordinary drink.

Mercurials have seemed to me almost indispensable to the cure of hydrothorax. They should be administered in such small quantities, and at such long intervals, as to procure if possible their alterative influences, without the occurrence of salivation.

Opium, if it exerts no marked effect in the removal of the disease, lends a most admirable aid in relieving or palliating the sufferings of the patient. I prescribe anodynes freely, to diminish the intolerable distress of the sick man in his nocturnal paroxysms of dyspnœa.

External irritants to the thorax are of some value here. A succession of blisters will do service. The ungt. tart. antimon. has been recommended.

Paracentesis thoracis is occasionally performed, oftener by the physicians of the continent of Europe, than by American and English practitioners. I can see no reasonable objection to it, when the presence of fluid within the cavities of the pleuræ is clearly made out.

HYDROCEPHALUS.—Collection of serous fluid within the cavity of the cranium. The effusion may occupy various localities; it is most frequently found within the ventricles; occasionally, as we are informed by Cheyne and Gölis, deposited in the very parenchymatous tissue of the brain itself; sometimes poured out upon the surface of the arachnoid; and in more than one instance on record, between the dura mater and the bony skull.

The nature of the disease is obscure, and has been the subject of much dispute. By many it is denied to exhibit any analogy with other hydropic affections, and considered as a mere phrenitis, or meningitis, an inflammation of the brain or its membranes, of which the effusion is an ultimate though uncertain or accidental result.

It must be acknowledged that such collections in the cranium are often preceded by symptoms which would seem to denote inflammation, but this is not always the fact. Congenital hydrocephalus is not rare, in which there is no proof of the precedence of inflammation; and most of the cases which develop themselves in early infancy, are free from any such indications as are supposed to be inseparably connected with inflammation. Besides this, instances are not wanting in which the symptoms which are believed to denote hydrocephalus, are mingled, or combined, or alternate with those of ascites and anasarca. Two such have occurred to me in black children of nine and ten years of age, and a third in an adult, a physician, a friend, and a former pupil. Blackall offers us some such facts. He has witnessed, as in the cases just alluded to, the metastasis of disposition to serous effusion from other

parts to the head, and also the extension to that part of general hydropic disease.

On these grounds I regard hydrocephalus, and treat of it here, as one of the forms of dropsy.

It is customary with authors to follow the division of hydrocephalus into *acute* and *chronic*.

The former, it must be acknowledged, would seem by the very description to be a mere phrenitis; some term it "tubercular meningitis"—but it is after all not very definitely depicted, nor distinguished accurately from affections of the head, which do not issue in the same result—an effusion, namely, of serum within the cranium.

The precursory *symptoms* are various, some of them referring to derangement of the sensorial, others to disturbance of the digestive system. The appetite is capricious or impaired, the tongue foul, the breath fetid, the belly tumid and costive, or irregular, with occasional diarrhœa—the urine is scanty and high colored, and there is some febrile excitement. The face of the child is flushed and turgid, he is restless, sleepless, moans, puts his hand to his head, shrinks from light, or seems to suffer from pain in the ear. These tokens of acute disease having continued for a longer or shorter time, a more characteristic series of phenomena supervene, which are assumed to be produced by pressure of effused fluid upon the brain, as the former are attributed to inflammatory excitement of greater or less violence. The pulse becomes slow and unequal; there is stupor, alternating with screaming and jactitation; the vision is now obviously impaired; there is strabismus with dilatation and immobility of the pupil; the child lies heavily, with the eyes half open. It can sometimes be roused for a moment so as to take food and drink, but soon falls again into a lethargic state; the hands are tremulous and raised frequently to the head, the lower limbs are paralysed, or contracted and crossed, the bladder and rectum expel their contents without the consciousness of the patient; great emaciation ensues, and death is often immediately preceded by violent convulsions. The duration of this stage also varies, but may be rated at from twelve to fifteen or sixteen days.

The *diagnosis* of this form of hydrocephalus is not possible before it has run into the second stage. The symptoms of the first are therefore deemed "precursory," as depending on conditions of disease, which may or may not result in effusion.

Chronic hydrocephalus, it has been said, is often congenital. In such instances the causes are of course unknown; but as it occurs frequently in several children of the same parents, and has happened very often when a scrofulous taint is known or suspected to be present,

many physicians consider scrofula as its most probable cause. When it occurs in early childhood, it may be either the result of the acute form, developed with less than fatal intensity ; or it may happen at once and unpreceded by the symptoms of inflammatory excitement, described as belonging to the first stage. The parietes of the cranium yield, and an immense distention takes place, occasioned by the accumulation of fluid, the head becomes thus misshapen and too heavy for the muscles of the patient to support, requiring to be borne upon the shoulder of a nurse, or laid always on a pillow. Fluctuation is distinctly perceptible. Pressure on the head is said to produce in some a complete stupor. The senses seem to be all lost or much impaired, the powers of voluntary motion are enfeebled, and convulsions of great violence sometimes show themselves. When the hands are moved at all, there is picking of the nose ; the teeth are ground together. As the case progresses, the respiration is affected, the legs are crossed and drawn up to the belly, the pulse becomes weak and intermitting, and at last ceases ; or the patient dies, worn out with tedious irritative fever and ulceration of parts, which bear the pressure of his weight. It happens, though rarely, that the brain accommodates itself to this morbid condition, and the patient drags out a long and wearisome existence, attaining mature age.

The *prognosis* of hydrocephalus is decidedly unfavorable. Few cases are recorded of recovery after the unequivocal development of the disease, by enlargement of the head and other signs of effusion, had taken place. Previous to these secondary results and during the progress of the precursory symptoms or first stage, as it has been called, we are not without hope.

Morbid anatomy.—Water is found, as has been mentioned, in the ventricles ; in the substance of the brain ; between the membranes in which it is enveloped, and external to the dura mater. An instance of this last kind occurred to myself.

The brain is often found presenting all the marks of inflammation, engorgement of its vessels, softening of its substance, adhesions of opposite surfaces of its membranes. Occasionally, C. Smyth says frequently, nothing of all this is to be observed. It has been found pressed out, and in thickness not more than one eighth of an inch ; it has been seen condensed and smaller than an egg.

Treatment.—By those who, with Rush, regard this effusion as a mere termination of phrenitis, venesection is placed at the head of our list of remedies. The jugular vein is selected and opened freely. Others prefer the application of leeches.

Purgatives are employed early by almost every practitioner ; and

in their continued effect we place, I think, our best hopes of a cure. I prefer the combination of a resinous drastic, jalap or rhubarb, with an alkali, the carb. potass. or sodæ. To obtain the full influence of these remedies, a judicious perseverance is required. Mercury is a fashionable remedy. It may be occasionally added, with advantage, to the cathartics prescribed.

I have no confidence in the class of diuretics, as applied here ; but digitalis is recommended by Smyth, Withering and others.

Antimonials have been used largely by Laennec.

Cold applications to the head are of great value, in the earlier stages, and should be persisted in. I prefer the frequent pouring of a stream of cold water upon the scalp to any other mode.

Blistering the head is resorted to in the protracted cases. Caustic issues and setons are also employed ; and in the last resort, paracentesis capitis has been repeatedly ventured on ; and we have instances of restoration after thus relieving the little patient, related by Drs. Vose and Conquest.

SCROFULA.—The various morbid affections which are included under the above title, afford perhaps the best exemplification of the dependence of local disease upon morbid peculiarity of constitution or predisposition. This predisposition or diathesis is said to be so well marked by characteristic appearances of conformation and physiognomy, as to be recognizable before the actual occurrence of open disease. The skin is fair and soft, the hair light and silky, the eye blue and mild, and of gentle expression, the upper lip tumid and deeply fissured in the centre. A child of this constitution often exhibits precocity of mind, united to irritability and obvious debility of body. The cheeks flush readily upon muscular exertion or mental emotion, and fatigue is promptly induced.

Scrofulous affections are not, however, exclusively confined to individuals whose aspect has been above described, but are met with, and not unfrequently, in persons of dark hair, coarse skin and brown complexion.

It prevails more in certain climates than others. Great Britain is particularly subject to scrofulous disease. Dry and warm regions are comparatively exempt from its presence.

Scrofulous inflammation, when it affects any other than the cutaneous surface, is apt to result in the secretion of a peculiar matter, which is, in some situations, mingled with much serum and pus, and in others, tends to condense or concrete into a solid body, known as a *tubercle*.

These are developed in immense numbers in the lungs in scrofulous phthisis, and shall receive a particular description under that head.

The identity of *scrofulosis* with *tuberculosis* has become recently a matter of dispute. Vogel speaks of the deposit in each as very similar in appearance and chemical composition, and of that of *typhosis* as also much the same; but Legrand maintains their absolute distinctness. "Tubercle possesses," he says, "a molecular element, which does not belong to scrofula. The chief or only seat of tubercle is in the internal organs; of scrofula in the skin and periosteum; tubercle, though it impoverishes the blood, does not destroy the inflammatory element, the fibrine; hence arise complications with the phlegmasiæ which hasten its disorganizing processes." Scrofula does destroy the inflammatory element. Tubercle he considers incurable, while scrofula is often cured. There is some apparent truth in these views, which nevertheless are not yet established.

The children of parents who have labored under any of the known forms of scrofula, are very liable to be attacked by similar disease, and thus hereditary transmission is universally recognized as the direct cause of scrofula.

The predisposition is gradually built up, in the first instance, under the influence of a number of circumstances, which diminish the vigor of the system. The cold and damp air of any particular district of country; living in close ill ventilated apartments; being fed upon unwholesome, scanty and innutritious diet; defective clothing; sedentary or depressing occupations; want of personal cleanliness, all these, when acting upon large masses, are known to give rise in a notable proportion among them, and a still larger proportion of their children, to various maladies, which long continued observation has led us to consider as connected by a common character, and as depending upon a similar morbid state of general constitution. Domestication, especially if connected with close keeping or crowding together, renders animals scrofulous.

Every tissue of the body is likely to be attacked by scrofula, the skin, the eyes, the glands, the joints, and the bones. Age modifies the disposition of particular structures to be affected. In early childhood, papular and squamous eruptions about the head and ears, ulceration and discoloration of the tunica adnata of the eye, and induration of the mesenteric glands, with tuberculous enlargement, are among its first tokens. Next, we have morbus coxarius and white swelling of the knee, and at or before the time of puberty, glandular enlargements and tumors about the neck, and pulmonary tubercles. The lungs and bones continue to sustain a like liability through life. It is worthy of

remark that not only is the predisposition transmitted hereditarily as above stated, but children have actually been born, laboring under scrofulous inflammation and pulmonary tubercles.

The *nature* of the original defect of constitution is not known. By some it is supposed to be seated in the digestive system. I rather ascribe it to improper action of the minute order of vessels, whose function it is to separate the materials of growth and nourishment, and the several secretions.

Scrofula also implies a contamination or deterioration of the fluids of the body. Sauvages considers the horse liable to scrofula. The disease which in this animal he entitles scrofula farcimen, has been propagated by transfusion of blood from a diseased to a healthy subject, and even from a horse to an ass, by Professor Coleman.

The most common development of scrofula, or as it was formerly called, *king's evil*, consists in the appearance and growth of small hard tumors in the course of the lymphatics, and especially on the neck. They increase slowly, often becoming indolent and remaining long stationary, giving no pain, and attracting little attention. After an indefinite time they enlarge, and are evidently inflamed. Matter at last forms in one or more, not true pus, but a thinner fluid, containing flaky, curdy coagula. The tumors often coalesce, and their contents are discharged by ulceration, which leaves irregular and deforming scars.

The *treatment* is properly divided into the curative and prophylactic—the former suited to the management of cases in which local inflammation, tumor and tubercle have been developed; the latter required where we have reason to anticipate or dread the occurrence of such local affections, either from known descent from scrofulous parents, or from the presence of those physiognomical peculiarities which point out the predisposition.

Mercurials have been much employed in the cure of scrofula. They require to be administered in very minute doses, and watched with great care. If ptyalism be allowed to supervene, injury is always done to the patient; but with the precautions suggested, mercury will be found among our best remedies. I prefer to exhibit the corrosive sublimate, in quantities indefinitely small; the dose should not exceed the 20th of a grain.

Cathartics, used in mild formulæ, with patient perseverance, are of much benefit. I combine them with some alkali, as there is generally notable tendency to acidity of stomach.

Tonics are greatly confided in. The chalybeates are selected by some physicians, cinchona by others.

The baths are valuable auxiliaries—the cold should be chosen, if it is pleasant to the patient ; otherwise the tepid bath.

The most precise cleanliness is necessary, of the person, the clothes, and the chamber. Where local excitement runs high, and still more when there is general sympathetic irritation, articles of stimulating quality must be avoided ; nay, even abstinence may be for a short time necessary. Except at such periods, a nourishing diet should be allowed.

Burnt sponge has been long in use for the cure of scrofula. It contains some of the alkalies already spoken of, and the peculiar agent iodine, which is by many regarded as the chief remedy for all scrofulous disorders. Some caution is, however, necessary in its employment. I prescribe the aqueous solution, exceedingly dilute, (Lugol's,) and in this form have seen it productive of extensive benefit. The new preparation known as the deutiodide of mercury and potassium, promises to be highly useful in all modes of scrofulous affection.

The combination of an indefinitely small proportion of iodine with some purgative salts minutely diffused in large quantities of water, as in many mineral springs both in Europe and America, deserves to be valued as our best remedy for all the incipient developments of scrofulous disease, and perhaps for all its stages, except in the instance of pulmonary tubercle, where the effect is thought questionable. The muriates or chlorides have been generally extolled—common salt, the muriates of lime, barytes and magnesia. It is to the mixture of some of these in sea water, that its acknowledged utility is to be ascribed. It is one of the best purgatives when recent and pure.

The narcotics deserve to be mentioned. They are all serviceable in relieving the symptomatic irritation arising from the local derangement. I confide in opium, others prefer conium and hyoscymus.

Of the *local treatment* of scrofulous tumor and inflammation. In some of its developments it needs active depletion by leeches and cupping. Glandular swellings on the neck, &c., should at first be soothed by soft poultices, and may afterwards be discussed by the application of iodine ointment, or if very hard and indolent, by blistering and stimulating embrocations.

The *prophylaxis*.—A child born of a scrofulous mother should be placed in the care of a healthy wet nurse. Removal from low, damp situations must be advised. The residence, and especially the sleeping apartment, must be well ventilated and kept neat. Children should not only live much in the open air, but should always have free access to abundant sun-light. The importance of light to the due development of both animal and vegetable life, cannot be exaggerated. Precise clean-

liness of person and clothing must be enjoined; bathing frequently practised; exercise in the fresh air is essential to health and vigor; the diet must be plain and generous. Warm clothing in winter must be worn—sedentary occupations avoided.

MARASMUS I place here, because it is rare comparatively to meet with any other form of atrophy than that which depends on scrofulous disease. Marasmus rarely attacks adults; children are generally affected at the time of weaning—hence the phrase *atrophia ablactorum*. It seems reasonable to account for this by the supposition, that their imperfect digestive organs are unable to bear a change of food; yet it would rather appear to be independent of the change, and a mere result of their arrival at this age, for it is of no benefit to keep them at the breast beyond the ordinary period. It is almost exclusively confined to children of scrofulous parents, or such as are subject to the causes formerly detailed, which tend to develope scrofulous disease.

Marasmus comes on with general languor, paleness of countenance, anorexia or capricious appetite, bowels irregular but soon becoming loose, with stools thin, discolored, offensive and acrid. The tongue is furred, with occasional vomiting, the inside of the mouth and corners of the lips ulcerate—the gums are spongy, the belly is tumid, the flesh of the limbs soft and flabby, the emaciation progressive, and at last extreme. The duration of the case varies, but it is often exceedingly protracted.

Autopsy.—Dissections show the intestines empty and contracted, or containing dark ill-conditioned secretions; the liver perhaps firmer and heavier than usual, and the mesenteric glands enlarged and indurated.

The last circumstance denotes the character of the case with sufficient clearness. The treatment is such as has been already indicated, with certain modifications hereafter to be pointed out under the head of *cholera infantum*.

There is a form of marasmus or atrophy well known to southern practitioners as the *cachexia africana*. It shows itself chiefly though not exclusively among negroes, and affects children much more than adults. The principal symptom is a craving for absorbents, whence the "dirt eating," which gives it a name. This propensity creates a habit of extreme tenacity, often fatal.

The use of alkalies, moderate purging, and the bitter tonics, tend to remove the condition of stomach with which it is connected. The habit has been controlled by teaching the patient to chew tobacco.

DISEASES OF THE ORGANS ENGAGED IN THE PERFORMANCE OF DIGESTION.

DYSPEPSIA.—This term is expressive of a definite disorder of the stomach; it is not synonymous with the word indigestion. The stomach under a great variety of morbid influences, refuses to dissolve or digest food taken into it; in fevers, it is common to see among the matters vomited in the early stages, articles of diet swallowed many hours previously. Mental emotion has the same effect; but the transient and symptomatic derangement of the stomach, which in these cases unfits it for the solution of food, differs notably from that condition of the organ of which we are to treat, and which is among the most frequent of the diseases of civilized and refined life. *Dyspepsia*, when it occurs as an independent and idiopathic affection, is the result of an imperfect secretion of the gastric fluids, so important to the physiological and chemical changes of food taken. When this occurs as the effect of previous disease of the stomach, as for example, inflammation, it clearly comes under another head, gastritis, acute or chronic; and hence the incorrectness of confounding them, as has been done by Parry, Broussais and Wilson Philip. Inflammation is a very frequent consequence of dyspepsia, and the last mentioned writer has treated of it as a sort of second stage.

It is idle to assume *hyperexcitation* as the only cause that can impair the power of any organ. When an organ has been subjected to the action of an excitant, two sets of effects follow, which, though not necessarily morbid, may become productive of injurious results. It is first stimulated; its capacity for action is, in the second place, impaired by exhaustion—enfeebled, relaxed. Hence the direct agency of a *sedative* may produce results closely analogous to, if not identical with the influence of a *stimulant*. We find *dyspepsia*, in conformity with these views, common to two classes of persons; sedentary men, on the one hand, literary persons, students, the poor who live on scanty innutritious diet; and on the other, debauchees, the intemperate and gluttons. It is not probable that the pathological condition of the stomach is exactly the same in these; but the symptoms exhibited are very similar and strikingly analogous.

Dyspepsia may be then defined as a local disorder of the stomach, manifesting itself by the slow and painful *solution* and *digestion* of food taken. Acid eructations, heartburn, a sense of painful fullness, or distention and weight, nausea and frequent vomiting, gastrodynia, emaciation, anorexia or defective and irregular appetite, are among the most general symptoms. From the universal sympathies which connect the dis-

eased organ with the rest of the system, we have an infinite variety of morbid phenomena in the cases which present themselves. There is flatulence, with severe colics; in many, obstinate constipation; in some, diarrhœa of various character; muscular debility and languor, great depression of spirits; vertigo, headache, dim, depraved and (rarely) double vision; obstinate vigilance and nocturnal restlessness, vapors and hallucinations; palpitation of the heart, with slow and sometimes intermittent pulse.

One of the most ordinary results of a continuance of dyspepsia, is the development of a chronic gastro-enterite, which is considered indeed by W. Philip as a second stage, and the symptoms of which are often, but improperly, (as even by Parry himself,) enumerated under our present head.

Dyspepsia proper is purely a functional disease, a true gastralgia. Insufficient excitement of the organ, as in persons ill-fed, and in students, who labor under undue determination to the brain, occasions a defect of determination to the organ, *imperfect innervation*, and impaired or depraved secretion. The same state of deranged innervation results from irregular and excessive excitement, as in sots and gluttons, and in many others, who without any imputation of moral impropriety, commit inadvertent excesses in quantity and quality of food and drink.

Another consequence of defective innervation, want of determination to the stomach, deficient or exhausted excitability, is the impairment of the contractile power of the organ. Hence its peristaltic motions, upon which depend the due movement, mixture, and solution of food, are feeble and ineffectual. All these conditions are comprised in the meaning of the word atony—the phrase, loss of tone of the stomach—and constitute the form of derangement which we call dyspepsia.

The first steps of digestion and assimilation of food are more obviously chemical than any other physiological process. The solution of articles of diet can be and has been effected by the gastric fluids out of the body under repeated observation. If, therefore, the ingesta remain undissolved, it must be from some change in these fluids by which their solvent power is impaired. This solvent property is supposed to reside in an acid. Berzelius and Liebig regard this as the lactic, others the phosphoric, others the hydrochloric, &c. Schmidt says it is a peculiar, complex, organic acid, the hydrochloro-pepsic.

The causes of dyspepsia are numerous and varied. With Cullen, I divide them into, “1st. Such as act directly and immediately upon the stomach; and 2d. Such as act upon the whole body, or particular parts of it; but in consequence of which, the stomach is chiefly or almost only affected.”

Under the first head, I mention imperfect mastication of food. The hasty eating, which all foreigners regard as strikingly characteristic of Americans, helps to account for the frequency of dyspepsia, and for the badness of the teeth, a cause in turn, as well as an effect, of gastric derangement. Mastication is doubly important, as of course rendering solution easier, and as mingling the food taken intimately with the saliva. Quantity of food, excess, as well in eating, as in the use of stimulating drinks. Quality of food, as when improper and innutritious articles are used, or badly cooked diet. Comparatively speaking, however, the quality of food is very rarely a cause of dyspepsia, as may be inferred from the immensely varied diet of different nations and tribes of men.

Under the second, modes of life and occupation may be enumerated. Indolence, sedentary habits; undue determination to the head, as in students; indulgence of the passions; labor in oppressive postures, and connected with confinement to close and impure air, subjection to care, and protracted anxiety.

The *diagnosis* from gastritis, with which dyspepsia has so often been confounded, ought to be carefully attempted, and the transition from one to the other, when long protracted dyspepsia has produced a chronic inflammation of the stomach, definitely marked. The latter is shown by a cleaner, redder tongue; thirst, a febrile exacerbation rarely fails to occur in the evening, when the mere dyspeptic suffers somewhat less. Pressure on the epigastrium too often looked upon as a test, will give pain, to a distended as well as an inflamed organ.

Treatment.—Most important to remove the cause; this done, the disease disappears. Diet should be nutritious, moderately stimulant, plainly but perfectly cooked, and taken at distant intervals. Too great abstemiousness may injure as much as excess. The power of any organ is improved by its moderate exercise. A reasonable variety of food should be allowed, as the appetite palls under a wearisome monotony. Nor is it possible that one uniform and exclusive diet, whether of bran, or milk, or porridge, or beef-steak, should suit all subjects and every condition of dyspepsia. The fluid taken should be plain, and in moderate quantities. Narcotics and stimulants ought rarely to be used habitually, though serviceable when judiciously prescribed.

Studies, and sedentary and confined occupations must be abandoned, exercise taken freely and actively in the open air, and conjoined with amusement. Medicines should be used sparingly and only for transient purposes. Costiveness may require occasional and mild cathartics or may be obviated by enemata and frictions over the abdomen; acidity with heartburn, by alkalies, or the mineral acids in small doses.

Gastrodynia is relieved by aromatics; or if these fail, and the pain is severe, by anodynes. Tonics are much employed; the metallic are best, such as iron and bismuth. Monneret advises the free use of the latter. He exhibits ʒ xij to ʒ xv a day in the idiopathic form of "gastralgia" with success. The hydrochloric or muriatic acid, is probably an essential constituent of the gastric or digestive fluid, and we thus account for its utility in dyspepsia. The same remark applies also, but with less force, in respect to the acetic acid, and the chloride of sodium or common salt. Mercury has been used with advantage, when there was a defect of secretion, but ptyalism does harm. Prussic acid is highly recommended by Elliotson.

The mineral springs, those which contain purging salts, and carbonic acid, and the chalybeates are often of service.

GASTRITIS.—*Acute gastritis* is recognized by the presence of severe pain at the epigastrium, with the sense of heat or burning, nausea, thirst, oppression, usually repeated vomiting. Pressure on the stomach cannot be borne; the pulse is hard, tense, frequent, small and contracted; the skin hot and dry, the tongue red or covered with a thin white coat; there is much anxiety with mental dejection, sighing, restlessness, and prostration of strength. As the case progresses, the tongue, cheeks, and esophagus inflame and ulcerate, the pulse sinks, the eye is red and suffused, there is low muttering delirium. Black vomit is often ejected; respiration, as well as deglutition, is difficult, and death soon follows.

Prognosis unfavorable. Depends somewhat upon the cause. Is more likely to terminate fatally, when supervening on previous disease.

Cause.—The acrid poisons whether mineral or vegetable, mechanical violence externally applied, exposure to severe alternations, violent passions, and the metastasis of other inflammations, as in gout, &c.

Inflammation of the stomach may produce suppuration, it is said, and gangrene. I have seen no instances of the kind. In death from gastritis, the mucous tissue is found deeply injected, softened as by maceration, sometimes, but rarely eroded.

Treatment.—The indications are obvious and undisputed. If it is known that any poisonous or acid matter has been taken into the stomach, the organ must be relieved by the employment of a quick emetic, or the stomach pump, and the proper antidote if at hand, administered. Beyond this, and from the beginning in spontaneous gastritis, the most prompt and energetic depletion is called for. Venesection must be carried to the utmost extent that can be borne, and local ab-

straction of blood by leeches and cups, at and near the epigastrium, assiduously resorted to. Warm poultices should be applied over the belly, while ice and cold fluids are allowed to quench the thirst of the patient. We may thus at once subdue the disease in some cases. If not promptly and completely successful by these means, we must soon have recourse to the mild and unirritating cathartics, such as calomel, epsom salt, and oleum ricini. The first will often remain upon a stomach so irritable, as to reject almost everything else; and as soon as it operates actively, will be found to be highly beneficial. The cathartic action must be aided by large enemata. If the patient sink rapidly and life seem ebbing away, I would not hesitate to exhibit stimulant and nutritious fluids. Spirit. terebinth. has been highly extolled. Camphor suspended in mucilage, may be given. Opiate preparations are often soothing and useful. I have succeeded in bad cases by endermic medication with the preparations of morphine, sprinkling them upon the blistered surface of the epigastrium. The infus. cinchonæ is unobjectionable as a tonic. In the mean while we aid in sustaining the feeble powers of life, with wine whey, milk punch, &c.

During convalescence, great care and prudence are necessary. The diet should be fluid or semi-fluid, and consist chiefly of vegetable materials, with the exception of milk, which if properly diluted, may be taken safely by almost any one; and of eggs, raw or very slightly boiled. Flannel should be worn next the skin, and all exposure and excess abstained from with resolution and perseverance.

Chronic gastritis may supervene so gradually, and develope itself so obscurely, as to exist for a great length of time without being detected, the sufferer being supposed to labor under dyspepsia or hypochondria. It is, as I have said, often a consequence of the former disease, and is hence frequently met with in the studious and sedentary, though prudent and temperate, as well as in the glutton and the sot.

Autopsy shows, that it may proceed even to the extent of erosion and ulceration of the mucous coat of the stomach, without having been suspected.

Symptoms.—In general the patient complains of a sense of distention, increased after a meal, especially if of stimulating food, increased also after long fasting. In its farther progress there is nausea and oppression, extrication of gas, thirst, a tongue smooth and fiery red, and ultimately covered with aphthous ulcers, as on the lips, cheeks and gums, these latter being also swollen and spongy. The pulse is small and weak; a febrile exacerbation may be observed at night, with restlessness, and jactation, and hot dry skin; there is emaciation and muscular debility, with defection and vacillation of mind.

There is often, but not always, pain at the epigastrium, augmented by pressure. Death is preceded by atrophy and diarrhœa.

Treatment.—If the patient's strength will admit, we resort to the lancet; but his debility and emaciation will often render this resource improper and unavailable. Topical depletion by cups and leeches is indicated, and should be repeated as often as it can be borne. Abstinence from solid and stimulating food must be strictly enjoined, and the diet consist exclusively of the mildest and most unirritating articles. The mucilages are generally advised, but in some cases produce great distress, by occasioning fermentation, flatulence, &c. Here, as an alternative, I allow milk diluted, eggs, raw or slightly boiled, and thin gelatinous broths. The bowels must be kept soluble, but by gentle means.

Calomel, in small doses, will scarcely disturb the most irritable stomach, and will do much service both as an evacuant and an alterative. Ptyalism, if slowly induced, and not carried too far, will prove highly beneficial. The *alkalies* are almost always useful, whether by their chemical properties alone, or through other influence, I will not pronounce. The combination of carb. sodæ with rhubarb will suit many patients, and seems to exert a tonic and restorative power, in addition to its laxative and antacid quality. We should not fail to advise, when it is in the power of the sick, a resort to our chalybeate, saline and carbonated mineral springs; but it is to be carefully recollected, that in the latter stages of these cases, where chronic diarrhœa has come on, and the intestines have lost their tone, all laxative waters will do immediate and irreparable injury.

The mur. tinct. ferri is among our best tonics here; the acet. plumbi is used, in union with opium in proper doses; the mist. cretacea, with kino, will be of service.

ENTERITIS.—*Inflammation of the intestines*, often combined with that of the stomach, forming the *gastro-enterite* so much talked of; occasionally, yet perhaps not very commonly, met with separately.

Symptoms.—Comes on usually with pain about the navel, fixed and extending over the whole abdomen, and attended with nausea and a sense of heat and burning, with great dejection of mind and prostration of bodily strength. The patient lies on his back, with his knees drawn up, rarely tossing the body; and shrinks from any pressure made upon the belly. This test, however, is not so strictly diagnostic as some have affirmed. I have seen two fatal cases in which pressure

was borne with indifference. The countenance expresses great distress and anxiety. The pulse is frequent, tense, chorded, contracted. The small contracted pulse of these inflammatory affections has been ingeniously accounted for by Dr. Buckler. "In inflammation of mucous tissues and parenchymatæ, the vessels are easily and largely distended. A morbid *hæmostasis* here withdraws much blood from the system, and the pulse is often weak and low, depressed or oppressed." But in bronchitis, the pulse is apt to be full and bounding.

I have seen black matter ejected both by vomiting and stool. Constipation is almost always present at first, but is succeeded by an irritating diarrhœa in bad cases, and with varied and highly offensive discharges. At last, the strength and pulse fail, the abdomen becoming distended and tympanitic, and exquisitely tender to the touch; the tongue is red and smooth and dry, or covered with ulcers; the breath is fetid, and the patient sinks with low muttering delirium.

Diagnosis.—Enteritis may be confounded with colic and peritonitis, from the latter of which, indeed, it is difficult to distinguish; but this is a matter of less importance, as the indications of cure, and even the details of the treatment, are so similar in the two sets of cases. In peritonitis, the pulse is more voluminous, there is less prostration and nausea, the abdominal tenderness is more urgent from the first, and the alvine evacuations of less morbid character. In colic, the pain is less fixed, there are intervals of ease more distinctly marked, the pulse is little, if at all, affected, and more immediate and greater relief is experienced from alvine evacuations and discharges of wind.

Certain special symptoms are supposed to be connected with the particular localities of intestinal inflammation. Thus in *duodenitis*, the vomiting is apt to be urgent from the excitement of the gastric sympathies, and jaundice supervenes from the tumefaction which impedes the easy flow of bile from the duct.

The absence of these coincidents marks the lower seats of the affection. Pain assists us in forming our judgment; if centred at the navel it shows the smaller tubes to be most diseased, *ileitis*, &c.; we can trace on examination the position and course of the larger, and thus detect *colonitis*, *tuphlitis*, &c.

Autopsy.—Like gastritis, enteritis brings on the fatal termination, in a large class of instances, by its oppressive influences upon the general constitution, and the local lesions are not very remarkable. They consist in engorgement or congestion of the vessels of the mucous intestinal membrane, the duodenum among the small, and the colon among the large, being most obviously affected; the membrane is softened usually in proportion to the discoloration. It is sometimes, however,

pale and soft, as if macerated. Ulceration sometimes occurs, and the intestinal parietes are now and then entirely perforated. I have known two instances of extensive gangrene of the colon and rectum.

Causes.—The same as those which produce gastritis. Intestinal inflammation more frequently follows exposure to cold and moisture, and is less likely to be brought on by acrid ingesta.

Treatment.—Venesection boldly resorted to, but still with due caution. Topical bloodletting, by cups and leeches over the whole abdomen, especially over points particularly the seats of pain; ice and cold fluids allowed internally, while warm fomentations and poultices are assiduously used externally.

The question as to the exhibition of cathartics in enteritis, has been long and warmly contested. I have no hesitation in employing purgatives, carefully selecting such as are least likely to irritate and annoy. Nothing seems to give more prompt relief to an inflamed mucous membrane, than abundant secretion from its own surface. I prefer to administer the epsom salts, in alternate doses with calomel, a combination at once mild and active. When the bowels have been well moved, I discontinue the salts, but persevere in the use of the mercurial until a gentle ptyalism is induced, which is invariably beneficial. Large enemata in the meanwhile, will aid our purgative, and render smaller quantities more effectual.

When topical depletion can no longer be borne, and the patient has become familiar with the fomentations, revulsion may be farther accomplished by the irritation of a blister, which should be large enough to cover the whole abdomen. Others may with the same view, be applied to the thighs and legs, if necessary.

As in the latter stage of gastritis, stimulants may be occasionally employed with obvious advantage. The spirit. terebinth. is chiefly preferred. Camphor and opium are also of unquestionable benefit.

Chronic enteritis sometimes occurs spontaneously, and often follows as the consequence of the acute form. It is characterised by the same symptoms as described above, but developed more gradually and with less intensity.

The cause, results, and treatment, are likewise similar.

Convalescence from intestinal inflammation, must be watched with peculiar care, as there is no disease which leaves on its subsidence a stronger tendency to recurrence. The clothing should be warm, with flannel over the abdomen; the diet carefully regulated, and all excess strictly avoided.

MILK SICKNESS.—This is a peculiar form of disease, met with chiefly in the mountainous districts of the southern and southwestern states.

The *cause* is not clearly made out, but whether aerial, mineral, or vegetable, seems to be limited in its production and influence. It never directly affects the *human* subject, but attacks chiefly, though not exclusively the cow and horse. The latter soon dies if not efficiently aided; the cow may live and is more likely to do so, if giving milk; but the milk, butter and flesh become poisonous, exciting in those who make use of them as food, a combination of symptoms indicative of an inflammatory affection of the stomach and intestines, a true gastro-enterite. The localities subject to the presence of this undetected agent, are well known and may be defined, and fenced in against the intrusion of cattle; it is said, that when cultivated, they lose their poisonous qualities.

Symptoms of milk-sickness. Within a short time after the patient has taken the deleterious milk, butter or flesh, he is oppressed with languor and lassitude—soon followed by nausea and vomiting, with pain, burning and oppression at the stomach. The thirst is urgent, the skin is hot and dry, the eyes are red and suffused and glassy; a peculiar odor exhales from the body. The bowels are obstinately constipated. The pulse, at first little changed, becomes frequent and contracted. Fever, with low muttering delirium, supervenes, and the patient sinks with symptoms closely resembling those of typhus gravior. The convalescence is slow and imperfect, and apt to be followed by long debility, by dyspepsia, and other gastric disorders.

The *treatment* does not seem to be well agreed on. The stomach, if not thoroughly cleansed by spontaneous vomiting, should be well emptied of its injurious contents by ipecac or other mild emetic, with draughts of warm water. If the pulse and strength admit, venesection must be resorted to; and at any rate topical depletion, by cups and leeches, will be required. The bowels must be actively moved by mild purgatives. The oily are preferred; and in neighborhoods subject to this disease, bear's oil is confided in as a sort of specific remedy. Oleum ricini and calomel will answer in combination, or alternately, every purpose; and if the disease be not fully subdued, the mercurial should be urged to the extent of a light ptyalism. Stimulants, peach brandy especially, are freely used in protracted cases.

During convalescence, and indeed for an indefinite period after it, great care must be taken as to diet, and all exposure and excess rigidly abstained from.

CONSTIPATION—COSTIVENESS.—The function of defecation regularly performed, is necessary to health and comfort. The frequency of the act in different persons is originally different, but is often determined by custom. With most persons an alvine movement occurs daily; in some it may be twice as often, and in others takes place every second or third day only, without suffering. Costiveness then is a relative term well understood.

After a certain interval elapsing without the bowels being emptied, there is a sense of fullness and weight in the belly, flying pains; anorexia and slight nausea; the tongue is furred, the breath fetid, the complexion muddy and sallow, the eyes yellowish and injected; emaciation takes place, and a disagreeable odor exhales from the body. The period being protracted, from 7 to 14 days perhaps, the symptoms become urgent: the belly is tense and will bear no pressure or movement; there is meteorism; hiccup; vomiting more and more frequent and violent until it becomes stercoraceous: in some cases, intense pain betokens inflammation, nay, even rupture of some portion of the intestinal tube, and the patient sinks rapidly.

The *causes* of constipation are numerous, but may be arranged under a few heads. 1. General defect of sensorial energy. 2. Local impairment of innervation. 3. Mechanical obstruction. 1. The first set of cases we meet with among those who live sedentary, indolent and studious lives, or who suffer from maladies which impair notably the tone of the system. 2. The second is the result of a monotonous diet, which does not sufficiently stimulate the digestive organs, often seen in dyspeptics, therefore, and of a too free use of cathartics for whatever purpose, by which the sensibility of the tube is worn out or its contractility fatigued. It is a condition brought on also by too great pre-occupation of mind, or any other contingency which shall lead to a habitual postponement or neglect of this great necessity. 3. Mechanical obstructions are formed by impacted ingesta, the husks and seeds of fruits, cherry stones, &c.; absorbents taken, chalk, clay, magnesia; by tumors of various kinds; by inflammatory constriction and adhesion, intussusception, hernial involvement, convolution or twisting and knotting together.

Autopsy shows the conditions above alluded to; inflammation; ulceration; immense distention; perforation; laceration.

Treatment should be relevant to cause which must be removed; exercise advised; diet varied, with fresh meats, vegetables and ripe fruit in season; resinous and drastic purgatives denounced; and a preference given to the milder, such as charcoal, sinapis alba, and the natural

saline purgative waters ; and a habit of regular effort and attention to the function instituted.

Kneading the abdomen is useful where there is mere torpor. Electromagnetism and galvanic excitants are also advised. When mechanical obstruction exists, examine carefully ; if from hardened fæces, break them down with wooden scoop ; throw enemata high up ; administer the mildest oily and saline purgatives. Quicksilver and gold and silver pills have been employed. Ox-bile inspissated is eulogized ; pills are exhibited of it, and it is used in glysters. I know no reason why, when all reasonable efforts fail in obstinate constipation and in fatal colic, we have not oftener resorted to enterotomy ; the establishment of an artificial anus, as in some hernias, might prolong the patient's life, and give him a chance of ultimate recovery.

COLIC.—This is one of the most frequent and painful of human diseases, but is, fortunately, among the most manageable and least fatal. It has been divided and subdivided into a great number of species and varieties, in reference to the causes which give rise to the attack, and the consequences which may attend it. I shall treat of it under three heads. 1. Flatulent colic ; 2. Bilious colic ; 3. Colica Pictorum.

1. *Flatulent colic* presents the following symptoms : pain in the bowels, with a sense of twisting and griping, especially about the navel ; nausea, costiveness, a feeling of distension, which in most cases, really supervenes after a time with tympanitic resonance of the belly, giving rise to much general distress, dyspnœa, &c. The pulse, unaffected at first, becomes in a few hours quick and frequent ; pressure, which early in the attack was sought for, cannot be borne ; the vomiting is more and more urgent, and if stools have not been procured, fæcal or stercoraceous matter is ejected from the mouth, forming the *illiac passion* ; nay, this inversion of the intestinal peristaltic action is occasionally so complete, that glysters are vomited up ; cold sweats exude from the skin, and the patient sinks, worn out with his intolerable sufferings. Or the irritation runs on into the production of exquisite enteritis, with gangrene or ulceration.

Post mortem examination shows, sometimes little or no alteration in the parts affected, sometimes constriction of a portion of the intestinal tube, with distension of the part immediately above it, and sometimes distension without any such constriction. Not unfrequently there is found intussusception of one portion of the tube within another, with strangulation of the part received, and its consequent mortification.

The *causes* of colic are numerous and much diversified. The presence of crude, acrid, indigestible food, long fasting, exposure to cold and moisture, vegetable matters specially liable to fermentation. But the secretion of gaseous and aerial matter, or of a fluid having such affinity to caloric, as to take on the gaseous form instantly on its secretion from the intestinal surface, seems highly probable in colic, besides the extrication of gases from fermenting vegetables.

While treating a patient for scarlatina in 1831, I saw three violent paroxysms of flatulent colic brought on at intervals of twenty-four hours, by enemata of the simplest character; nothing but water, and that in very moderate quantity, having been taken in the meanwhile by the sick man, who had been managed strictly on the expectant system.

This *pneumatosi*s or development of air is a very obscure phenomenon and deserves more attention than it has received from pathologists. It is a very prominent symptom in hysteria, and constitutes the chief suffering of many dyspeptics; it is closely associated with all forms of nephralgia, and under the name of tympanitis or meteorism, attends the last stages of many fevers and other fatal diseases.

Pathology.—All circumstances seem to me to establish the belief in the essential and invariable presence of spasmodic constriction of some portion of the intestinal tube. The mere loss of muscular power and the cessation of peristaltic action, with the consequent distension of a section of the tube, as supposed by Abercrombie, does not account for the symptoms, the pain, the constipation, the obstruction of the passage of air, the intussusception, and strangulation of the received portion of gut. Nor is the occurrence of stercoraceous vomiting or the ejection of enemata by the mouth, at all capable of explanation upon Abercrombie's doctrine of mere muscular paralysis with consequent passive detention, for this would as much impede the reversed or anti-peristaltic as the normal or peristaltic movements. In hernia, where the phenomena are very similar, we know they depend upon such a stricture, and are readily relieved by its mechanical division.

To these arguments, *a priori*, we add the following, *a posteriori*. If distension be the essence of the disease, it is impossible to account for the undoubted utility, nay, the immediate efficacy of relaxants and anti-irritants in its removal; yet the lancet and opium are our principal remedies; and the warm bath and tobacco, and the antimonials, are highly recommended by Abercrombie himself.

Treatment.—In the early stage, the domestic administration of aromatics, and so styled anti-spasmodics, often succeeds completely, as mint, ether, camphor, &c. Chloroform has been administered inter-

nally with good effect in doses of from 5 to 50 drops. I should expect benefit from the solution of camphor in it. Inhalation to moderate anesthesia has given immediate relief. If the stomach have recently received any suspicious articles of food, or if it be loaded with a full meal, it should be emptied by an active emetic. The warm bath and opium are almost universally indicated. Purgatives at this stage are hurtful, but enemata are highly serviceable. If the pulse rise, and the abdomen become tender on pressure, the lancet must be used freely, and cups or leeches applied to the abdomen, which should be covered with warm fomentations or poultices. Mild laxatives are now proper, oleum ricini with tincture of opium, or calomel and opium in moderate doses, will be of evident benefit. By such means as these, assiduously and perseveringly employed, we may almost always prevent the obstinate constipation, and violent intestinal and gastric disturbances so often described, and which most frequently appear to be consequences of harsh and ill-judged management. If relaxation be aimed at, it can be most efficiently accomplished by the employment of tart. ant. and tobacco in enemata. Croton oil rubbed on the belly, or on the tongue, will, it is said, operate actively on the obstructed bowels, in difficult cases. I have succeeded in De Haen's method, by the mere mechanical distension of the lower intestines, by large quantities of tepid water thrown up steadily from a syringe or inverted stomach pump. The use of mechanical deobstruents by the mouth, such as gold and silver pills and crude mercury, I mention only to reprobate. It is curious to note, however, the amount and weight of testimony which may be found in their favor.

The introduction of a tube far up into the intestine as suggested by O'Beirne, may be cautiously attempted, and will sometimes give vent to large quantities of air, to the infinite relief of the patient, or it may be employed to convey the fluid enemata so high as to stimulate the bowels to an increased energy of peristaltic action.

2. *Bilious colic*, a modification of ileus, which owes its characteristic peculiarities to the cause producing it, to the state of the system of the subject, and to the season of the year in which it occurs. It is met with in summer and autumn—attacks persons of "bilious habit;" those namely who are subject to hepatic affections, and is attributed to the influence of malaria. The immediate irritation of the intestines is probably excited by the entrance into them of a vitiated and acrid bile; and in all the attendant circumstances, there is an obvious analogy with ordinary autumnal remittent.

The access of bilious colic is often accompanied with febrile chill, which is succeeded by flushing of the face, heat, and dryness of the

skin, great thirst, and a full, hard, and frequent pulse. The vomiting, which is urgent, brings up bile, with morbid secretions, and there is great heat and oppression at the pit of the stomach, with intense pain over the whole abdomen; obstinate constipation often attends, with tormina and tenesmus.

Treatment.—Venesection is obviously required, and must be promptly carried to as full an extent as the strength will allow. Opium cannot be dispensed with, and is demanded in free doses to relieve the sufferings of the patient. Cathartics may be given alternately, or in combination; but there is much difficulty in procuring their operation. I prefer to employ calomel and opium largely together, aiding their effect by proper enemata. I have been in the habit of prescribing 5 grs. opii with 10 grs. to 3i of merc. dulc. repeating the same dose at an interval of about 3 hours. Meanwhile, say an hour after the first is taken, an ounce or two of castor oil with grs. xx or xxx of tinct. opii will often be retained and act promptly. The warm bath should be resorted to promptly, the abdomen cupped, and fomentations or poultices applied. When the intestinal constriction and obstruction are overcome, the case usually requires to be farther treated as a *bilious remittent*.

3. *Colica pictonum, rachialgia, painter's colic.*—This gastro-enteritic affection is always attributable to the poisonous influence of some of the salts of *lead*, a metal so widely employed in the arts of civilized life, that all are liable to be, in their turn, acted upon by its peculiar effects, which are in many cases developed very gradually, and in a chronic form.

Symptoms.—Rachialgia commences with a dull pain at the pit of the stomach, extending downwards, and fixing with great severity at the navel. The abdomen becomes tender, and is drawn backward and flattened, with much pain in the loins and back. There is obstinate costiveness, with occasional inclination to go to stool, and usually, but not always, nausea and vomiting. The tongue is foul and the gums livid. The pulse is small and tense and frequent, with headache, restlessness, and dejection of mind. The patient is emaciated and feeble, and prefers a bent posture, leaning forward. Epilepsy supervenes occasionally, but much more frequently, a peculiar paralysis of one or both of the upper extremities, with flaccidity of the wrist and hand, and wasting of the arm.

The *pathology* of rachialgia is obscure. In a great proportion of the cases the element of pneumatosis is wanting. Andral says that there is abdominal distension in half the cases. I have seen it in very few.

The *diagnosis* is not easy, unless we are assisted by the history and known exposure. The blue line along the gums is said to be characteristic.

Autopsy sometimes reveals no obvious change, no constriction, distention, no intussusceptions. The mucous surface of the intestines is generally pale. Sometimes, but not often, the usual results of inflammation of this tissue, and of the peritoneum, are met with; the bowels being in some places contracted, in others, irregularly distended. Lead is affirmed to be found, upon nice chemical analysis, in the brain, liver, &c., and in the discolored tissue of the gum.

Treatment.—Opium is the principal remedy, and must be employed freely from the first, given in full doses by the mouth, mixed in enemata, and applied to the surface in poultices and fomentations. After a time, cathartics must be used alternately or in combination with it, the mildest being, for that reason, the best, if at all efficient. Oleum ricini, epsom salt, and calomel, are usually preferred. If the pulse and strength admit, the lancet may be employed, and the belly cupped or leeches.

In protracted cases, alum and powdered nutmeg have been highly recommended. Epispastics are also advised to be put on the abdomen and thighs successively. Sulphuric acid in dilute mixture is urged by some as a specific antidote, and has been extensively employed as a prophylactic. It is supposed to combine with the poisonous carbonate of lead and form the insoluble and therefore harmless sulphate. Mialhe denies this chemical effect and condemns its use. His objections, however, seem to me merely theoretical, and unsustained by facts.

During convalescence, a flannel fold and bandage should be worn around the trunk of the body, and the diet carefully regulated.

The paralysis of the arm and hand, above described, is best relieved by supporting the limb in a carved splint, well fitted to it; while we administer calomel and opium in small doses, and with perseverance, until a gentle ptyalism is induced. Ergot is affirmed by good authority to be a "specific" in lead palsy.

In obstinate cases, strychnine is said to have been exhibited with a favorable result. The nitrate of silver has received similar eulogy also. Locally the cold affusion may be of service; but more is hoped for, from the assiduous employment of electricity and galvanism.

CHOLERA.—It is necessary to speak of this affection of the stomach and bowels under the separate heads of—1. Common or sporadic chol-

era, cholera morbus; 2. Epidemic or malignant cholera, cholera asphyxia, Asiatic cholera. The *first* is among the most ordinary diseases of all climates and seasons, and though alarming by its suddenness and violence, yet fatal in but a small proportion of cases; the *second*, on the other hand, though generally regarded as identical in nature and pathology, has spread the utmost dismay throughout the civilized world, by its fatal malignity and the wide extent of its career. Since, in the early part of the present century, it attracted attention in British India, it has everywhere exhibited a proportional mortality almost beyond example.

The symptoms of *common cholera* are familiar to every one: Vomiting and purging, with pain and cramp of the stomach and limbs, great prostration of strength, cold and clammy skin, and extreme anxiety and dejection of mind. Death may sometimes occur from the immediate loss of strength which follows the immoderate evacuations upwards and downwards; it sometimes happens, too, that when these have subsided spontaneously, or have been checked, a true gastro-enteritis supervenes, with fever of low irritative type.

The *causes* of cholera are numerous: Crude or indigestible food taken into the stomach, raw or half cooked or putrescent vegetables, fruit in excess or unripe, and some fruits by their acrid quality, ices and confections in undue quantity, shell fish to those unaccustomed to use them, a supper of mixed materials taken just before going to bed, exposures to alternations of temperature, and to cold with moisture.

It is well known that it attacks much more frequently by night than by day; a very large majority of cases are said to commence between midnight and three o'clock in the morning. From its more frequent occurrence in autumn, and in low hot regions, it is usual to speak of malaria as among its causes, and to regard it as occasionally the effect of the flow of a vitiated and acrid bile into the alimentary canal, and facts seem to me to justify the opinion. Many of our medicines (as tartarized antimony, &c.) produce it readily; and a very severe form of it supervenes upon repelled eruptions, and follows sudden and careless exposure after the subsidence of the exanthemata—measles especially.

Autopsy displays nothing uniform or explanatory. When the case has been of brief duration, little trace of disease is left. If more protracted, there are obvious marks of inflammatory irritation of the gastro-enteric mucous surface, with occasional extension of inflammation and its results, to the peritoneum.

The *prognosis* is for the most part favorable, provided the patient be of ordinary vigor, and the case be early treated with proper attention.

If, on the other hand, it has been neglected, or injudiciously managed, and especially, if symptoms of gastritis or enteritis have made their appearance, the danger has become serious.

Treatment.—In a great majority of instances *opium* is of itself sufficient to calm the gastric irritation, from whatever cause arising, and to subdue the disease. With Sydenham I prefer “liquid laudanum” to any other formula; it should be given in full doses, and if not retained when swallowed, should be thrown up the rectum in a mucilaginous enema, while fomentations or poultices mixed with it, are applied to the belly. Sinapisms should be laid to the wrists and ancles; and if the strength fail, stimulants may be required, as ammonia, ether, camphor and brandy. In general these remedies will be found sufficient; but if the relief thus secured be imperfect, some febrile excitement manifesting itself with menace of gastric and intestinal inflammation, the treatment already advised under such circumstances, must be promptly and assiduously instituted.

2. *Malignant or epidemic cholera.*—To the symptoms above recounted, as belonging to cholera generally, we are to add, in the description of this terrible pestilence, certain striking phenomena, which some consider indeed as peculiar to, and characteristic of it.

The evacuations are of almost uniform appearance, consisting of a well known serous fluid, with minute whitish flakes, strongly resembling rice water or thin gruel. The spasms are extremely violent, contracting with severe cramps, almost every muscle of the body. The blood, when drawn from a vein and examined with chemical re-agents, is found to be deprived, in great proportion, of its serum and the salts usually contained in it. The stage of *collapse*, into which patients often sink, is remarkable. It seems to me to be a state of true capillary paralysis. The surface is quite *blue* or livid, or as I saw it in one case, of dark mahogany or bronze color, the skin is as cold as after death, with a clammy moisture, while the patient often complains of intense heat; the hands and feet are shrunken and corrugated, as if sodden a long while in water. The urinary secretion is in bad cases very much diminished or even totally abolished. The voice fails, or sinks to a husky whisper, described as the *vox cholERICA*. The progress is fearfully rapid, patients often dying within a few hours, and in some few of the malignant attacks, in a still shorter period.

The form assumed is somewhat modified in the different localities invaded. In some places, we find spasm more prominent; in others, the serous evacuations are more profuse; some are favored with a benign alarm from premonitory symptoms, as diarrhœa, while others are overwhelmed with fearful promptness into collapse. Indeed this diar-

rhœa has been supposed to constitute the first stage of the attack, and has received the specific name of *cholerine*. It is usually painless and free or abundant.

The consecutive febrile stage was, in France and England, a more common sequela; in other countries, it has been met with but seldom, comparatively. Instead of it, I have noted in many instances a strange and peculiar condition. The patient is drowsy, but not comatose; dull, but not incoherent. The pulse is very soft, full and slow, the pupil of the eye somewhat dilated; the tongue and mouth dry, with much thirst. Respiration is extremely slow, and the breathing sometimes stertorous, with moaning or muttering. No pain is complained of; the stomach and bowels are quiet; the strength fails rapidly, so that the subject is apt to fall into syncope on being raised from the recumbent posture. He must be called loudly or shaken to arouse him, but when waked speaks with unexpected promptness, clearness and alacrity. Blood, when drawn, is very dark, coagulating slowly, with little or no serum. Dr. Keir of Moscow, describes a similar set of symptoms, which he regards as denoting "a congestive sub-inflammatory state of the brain and spinal cord."

Causes.—A peculiar distemperature of the atmosphere, in nature and origin absolutely unknown, is assumed to be the generating cause of cholera, when prevailing in this malignant and *epidemic* form. I am of those who regard it also as *contagious*, and attribute its extension chiefly to this power or quality. The question is hotly contested, but there are certain facts which can be explained and understood no otherwise than by reference to such a property of communicability. We do not, however, doubt or deny the atmospheric distemperature supposed, although the mode in which such contamination arises, or is effected, has not yet been explained. Ozone has been accused most imaginatively as the cause of cholera. Some of our western brethren persist against all reason in maintaining it to be of malarious origin. Many are disposed to contend for its connection with the electrical conditions of the atmosphere, a notion refuted by Olmsted.

The two principal hypotheses now under discussion regard the cause of cholera as organic, self re-productive, and capable of the most rapid increase or multiplication. The first supposes the poison to be *animalcular*; the second pronounces it vegetable, cryptogamous, *fungous*. The living atoms in either case are minute beyond the reach of our senses, however aided, ultra microscopic. The first is recommended by the high names of Monjon, Neal, Holland; the second most ably maintained by its ingenious promulgator, Prof. J. K. Mitchell of Jefferson College, Philadelphia; and by Dr. Cowdell in England.

I am disposed to accept the latter as a suggestion highly probable, with the addition that the vegetable sporules find in the human body a congenial habitat and fruitful soil, and being generated in infinite masses in the fluids and solids of the sick man, are eliminated with great rapidity and in prodigious abundance, filling the air and assailing all around him.

In certain atmospheres they die promptly ; certain bodies resist their attacks ; in other places they flourish and meet with great numbers predisposed to receive them ; hence they give rise to epidemic cholera, or on the other hand infect but a few subjects.

This pestilence is, to a degree unprecedented in the history of epidemic diseases, independent in its prevalence upon any of the ordinary influences of place, season, or climate, pursuing its ravages with equal sway "under the burning line," and amidst the wintry snows of Russia.

Prognosis.—The danger seems to be proportioned to the collapse, that is, the circulatory stagnation and general loss of strength. The inordinate evacuations are sometimes well borne, and do not show the greatest degree of risk, unless attended by notable prostration. The absolute non-secretion of urine is among the most fearful tokens, and its resumption, on the other hand, shows a change for the better. So also does the recovery of the natural tone of voice, when it has been much altered. The intensity of spasm has sometimes proved fatal ; but we are not to draw favorable inferences from its subsidence, unless there be at the same time, increased fullness of pulse and warmth of skin. Such vascular reaction affords the best hope of recovery, but requires to be carefully watched ; and depletion, if necessary, to be cautiously graduated.

The *diagnosis* can only relate to the distinction between ordinary and Asiatic cholera ; for this purpose, the history of the preceding and attendant circumstances will usually suffice, though there are cases of the one so mild, and of the other so severe, as to resemble very closely.

We must fix our attention upon its *asphyxious* character as the true diagnostic. This is shown in the impairment of the capillary circulation ; hence the slow breathing, the cold tongue, the shrinking and sodden and icy skin, the suspension of secretions, the feeble or slow pulse, the weak action and impulse of the heart, the blueness of the surface.

Autopsy.—The external appearance of the body is striking. The solids are sunk, the surface is livid, bronzed or blue, the skin of the hands and feet corrugated, the fingers often rigidly contracted by

spasm, which indeed, in cases of short duration, may continue to affect the various muscles several hours after death. We are warned not to pronounce hastily in such cases, that death has taken place, as several singular instances of recovery have been recorded under the circumstances. There is, occasionally, congestion of the vessels of the brain, and some extravasation within the cranium. Magendie describes a ghastly transparency of the sclerotica, as occurring even a short time before death, or immediately after it. The lungs and heart are usually healthy, but gorged with dark blood. The mucous coat of the stomach and intestines is, for the most part, pale or blanched in those who die in the early stage of an attack, while the other abdominal viscera show the marks of congestion. Horner describes a species of vesicular eruption as showing itself upon the gastric and intestinal surfaces, and regards this exanthematous affection of the mucous membrane as constant and characteristic. When the case has been protracted, the congestion of the liver and spleen has disappeared, and the villous intestinal tunic exhibits traces of various degrees of inflammatory irritation. The stomach and bowels are found often filled with a serous or gelatinous fluid, identical with that discharged by vomiting and purging. The quantity thus excreted, is supposed to account for the defect of serum and the salts dissolved in it, in the blood of choleric patients, the analysis of which has been made with great nicety by Clanny, O'Shaughnessy, and others. Andral, Favre, and Taylor deny absolutely, however, the albuminous nature of the alvine discharges in cholera. These fluids are found to be loaded with epithelial scales of both the tessellate and cylinder variety, thrown off doubtless from the surface of the whole alimentary tube, and in such quantity as to account fully for the cloudiness and opacity which gives them the appellation, rice-colored.

Dr. Burnett discovered in the same fluid crystals floating of oxalate of lime. The same observer also noted the presence of thousands of animalculæ swarming and sporting about in fluid from a subject, whose muscular tissue was also filled with similar animalculæ, living and active vibriones.

Treatment.—In mild cases, seen early, and in subjects warned by the slighter precursory symptoms, I would promptly exhibit the tinct. opii in sufficient doses, putting the patient to bed, and covering the abdomen with warm fomentations and poultices, and the extremities with sinapisms. I would depend upon the influence of calomel, which I would combine with opium, proportioning the dose to the urgency of the attack. An immense accumulation of evidence in favor of the remedial powers of calomel has been brought forward. While some,

with Ayre, employ it in small amount, 1 gr. frequently repeated, others resort at once to large quantities, from ʒi to half an ounce or more. Prof. Hooker of Yale College, in his ingenious treatise on abdominal auscultation, declares that "frequent small doses of calomel did not seem to diminish, but, at least temporarily, to increase the disordered peristaltic and anti-peristaltic motions, while a single drachm dose almost invariably caused a total suspension of these motions. Calomel in very large doses thus seemed to be the appropriate remedy for the disease."

If the pulse sink, and exhaustion threaten to supervene, I would administer capsicum and camphor; and if the prostration increase, employ unhesitatingly, the most energetic of the diffusible stimulants. *Ice ad libitum* should be allowed during all the stages of the attack, if agreeable and asked for.

In cases marked specially by painful spasms and cramps, I have used the lancet with great freedom and successfully. Pressure and friction upon the contracted muscles will give relief.

Such cases are apt to obtain relief from the use of chloroform, which should be tried fairly. A solution of camphor in the same powerful anesthetic has also been found serviceable in the violent intestinal pains, spasmodic and cholicky, which are so often present.

The true collapse, a complete capillary paralysis, is an almost hopeless condition, and fairly beyond the resources of our art; but we must not abandon our patient; and in our embarrassment, I would decidedly prefer the stimulant, rather than the opposite class of measures. A mustard emetic with salt, followed by free doses of turpentine, capsicum, laudanum and ether, with the application of heat and irritants to the surface, seem to me the most promising remedies.

In the consecutive fever, topical and sometimes general bloodletting, the application of leeches, especially to the temples and occipital region, mild cathartics, with the mercurial treatment carried to the extent of a light ptyalism, are the measures most obviously indicated.

I scarcely need say, that I have little confidence in the exhibition of saline medicines, in large quantities, as recommended by Stevens; or in their introduction into the veins, as practised by Latta and others; or in the inhalation of oxygen; or the deluging the stomach with either warm or cold water, in the indefinite draughts lauded by Shute and his antagonists on either hand; or in the tobacco enema of Baird, or the frictions with ice, proposed by Jackson.

DIARRHŒA.—Inordinate frequency and fluidity of the alvine evacuations. Very generally, though not always, there is griping pain preceding and accompanying each motion, and relieved by it for a time. Anorexia attends, with nausea sometimes, and vomiting; the tongue is furred and whitish; fever is rarely present, and does not by any means form a part of the ordinary history of the disease. If the case be protracted, there is emaciation with great debility; the lips, cheeks, gums, and tongue become aphthous, and the patient sinks at last, exhausted by the unceasing drain, and the atrophy which of course results.

Diarrhœa has been subdivided into many species, in reference to the alleged sources, and the morbid peculiarities presented in the stools, but the pathology is in all the same. Simple diarrhœa is obviously a neuropathic, not an inflammatory affection, combining three elements.

1. Impairment of fœcification, or separation of nutritive from effete matters;
2. Undue secretion, superabundant and morbidly altered.
3. Morbid excitement of muscular tissue to vehement peristaltic action.

Causes.—Indigestion, whether from excess in quantity of food, or any other circumstance disordering the stomach, is the usual commencement of attacks of diarrhœa. There are indeed many substances which by some peculiar property bring on transient diarrhœa, as the whole class of laxatives and purgatives; several articles of diet, as for example preparations of Indian corn; many fruits, ripe and unripe, molasses, confections, ices, &c. &c. The disease results also from sudden exposure to atmospheric vicissitudes, and to cold and moisture. It arises from impressions made directly or indirectly upon the liver, occasioning an undue flow of vitiated bile into the duodenum. It occurs from repelled eruptions, and at the subsidence of the exanthemata; from irregular gout and rheumatism, and in some cases of fever, when the evacuations are spoken of as "critical."

Prognosis.—If early and judiciously prescribed for, diarrhœa is not generally difficult of cure; but if neglected or aggravated, as is often the fact, by the employment of inappropriate medicines, it may terminate fatally, though this is rare; or it may run on into a chronic stage, in which it assumes a singular obstinacy, enduring for months, and even years.

Treatment.—It has been too much a general rule to begin the management of diarrhœa, by the exhibition of an emetic or cathartic, or perhaps both. This is seldom proper. When foul, crude, irritating ingesta have been recently taken into the stomach, a mild emetic of ipecac may be premised; and if the stools have from the first contained little or no feculent matter, giving reason to suspect their retention, a gentle cathartic of oleum ricini, pulv. rhei, or calomel may

do service by the removal of such oppressive accumulations. For the most part, however, the evacuations have been sufficiently free, and it is best to commence at once with the administration of opiates and diaphoretics. The Dover's powder, or the tinct. opii camphorata, will, with few exceptions, put an end to ordinary attacks. If soreness of the abdomen exists, or febrile excitement be present, it may be proper to cup or leech the belly. Fomentations and poultices, mingled with mustard or other stimulant, are always useful. Alkaline and astringent medicines are next to be prescribed. Of the former, the carb. potass., cret. ppts. and aqua calcis, are much relied on. Kino is preferred to all the astringents, and has received high eulogies from Pemberton and Bally. The cretaceous julep is a familiar and very extensively applicable combination of the mucilage of gum arabic, with cret. ppt. and kino and an opiate. In chronic diarrhœa, the sulphates of alumine, zinc and copper, have met with zealous advocates. The latter is much employed by Elliotson. The acet. plumbi is deserving of confidence. The nitrat. argent. is often useful in protracted cases, and is specially adapted when the red or aphthous tongue shows an inflammatory and ulcerous condition of the digestive mucous membrane. The trisnitrate of bismuth is also well suited here and may be exhibited in pretty free doses, from five grs. to ʒi ter die. The diet should be nourishing, but plain, with little fluid of any kind, and all stimulants avoided. The trunk of the body should be enveloped in flannel, and a journey or sea voyage undertaken.

DYSENTERY.—Pain and disorder of the bowels, fever, tormina and tenesmus, with alvine discharges of mucous or muco-purulent or muco-sanguinolent matter; these are the general symptoms which concur to constitute dysentery.

It presents itself often sporadically; not unfrequently as an epidemic; is notably modified by season, climate, and other circumstances, and exhibits occasionally a contagious disposition; nay, Cullen and others regard contagion as one of its uniform characteristics.

Dysentery comes on with some gastric uneasiness for the most part, with griping and repeated calls to stool; the evacuations are scanty and unsatisfactory, and give no relief, being attended with much straining, and consisting at first of a mere bloody mucus, fœcal matter being seldom discharged, and in small quantities. Febrile excitement runs high, with heat and dryness of skin, and full hard pulse—or in other cases partakes more of the characteristics of typhus, when we have sudden prostration, with feeble circulation and low muttering delirium;

the belly becomes more sore to the touch—the tongue is fiery red, at first covered with a thick fur, but clearing off after a time with a smooth epithelium-like surface—there is great restlessness, with much anxiety and oppression and sighing. The alvine discharges are now very frequent and exceedingly offensive, and much and variously changed in appearance and qualities. Small, round, hardened fœcal lumps (technically denoted *scybala*) are occasionally passed by the patient, and always with notable relief; lumps of sebaceous matter are also sometimes voided. The stomach often becomes, in these latter stages, irritable—debility and emaciation rapidly increase—the abdominal pains having reached an intolerable intensity, sometimes cease suddenly and entirely, and death soon follows.

Autopsy.—Dissections uniformly reveal the results of inflammation—often showing constriction of some part of the intestinal canal. These lesions have been most frequently found in the colon and rectum. Ulcers are seen of various sizes, eroding the mucous coat; and gangrene is occasionally met with of greater or less extent.

Diagnosis.—Dysentery has been confounded on the one hand with diarrhœa, and on the other, with mere intestinal inflammation, whence it has been styled by Ballingall and others, a colonitis. From diarrhœa it is distinguished by the essential presence of fever and of spasmodic constriction. Dysentery is uniformly a pyretic affection; and we cannot doubt of the morbid constriction of some part of the tube, as in colic, when we reflect on the difficulty with which fœcal evacuations are procured, and the relief which always follows at once when they do happen.

That the intestine is inflamed in dysentery is obvious and certain; but the nature of this inflammation is peculiar, and it is uniformly combined with circumstances and conditions which are characteristic. Thus in enteritis we have little or no excitement of the peristaltic movements of the bowels, so urgent in dysentery; nor are there present the tenesmus, or griping, or the hemorrhagic transudation, or the tokens of spasmodic constriction met with in the latter.

The *pathology* of dysentery presents several complicated conditions which separate it (in practice readily enough) from all other diseases. Pain, fever, and inflammation, ulceration and hemorrhage, increase and morbid alteration of the intestinal secretions, with urgent vehemence of the expulsive actions, all combine in each individual case.

Causes.—Dysentery may occur *sporadically* at any season of the year, like cholera and diarrhœa, from the irritation of the alimentary tube, by improper, crude and acrid ingesta, or by exposure to cold and moisture, and sudden alternations of temperature.

It may arise as an *endemic*, in localities subject to the influence of malaria, and in the autumn especially. This form, in common with tropical dysentery, is supposed to be connected with hepatic derangement and effusion of vitiated bile.

It occurs not unfrequently as an *epidemic*, spreading rapidly and extensively, by means of some unknown atmospheric contamination. It assumes probably a *contagious* character under certain circumstances, as when it invades a jail, hospital, ship or camp, crowded and ill-ventilated places, and where the attendant fever is of typhoid type.

Prognosis.—The general prognosis in vernal and winter dysentery, and in sporadic attacks, is favorable; not much so in epidemic and autumnal dysentery; and decidedly the reverse when the fever is of typhoid character.

In particular cases, the danger may be considered as in pretty exact proportion with the urgency and frequency of the calls to stool; and a diminution of this frequency is one of the most pleasing symptoms. The nature, too, of the discharges, is of some importance. Hemorrhage is a sign of evil, as showing erosion of some vessel, or extreme force of vascular determination to some part of the internal surface; purulent fluid, as resulting from high inflammatory excitement, not unlikely to be productive of ulceration; so also, fibrinous shreds or pieces of membrane, similar to that found in the larynx in croup; and ichorous or sanious and highly offensive matters, as giving reason to dread the supervention of gangrene. Relaxation of the sphincter ani is considered a gloomy prognostic.

Recovery is probably at hand when the fever subsides, the tormina are less severe, the tenesmus less urgent, the alvine evacuations assume a fecal odor and appearance, and the tongue becomes moister and less red.

Treatment.—Bloodletting is occasionally indicated, less frequently in the epidemic and autumnal dysenteries: it is of course unsuited to cases of feeble constitution and typhous combination. Topical depletion, by cupping and leeching the belly, is generally useful; after which, fomentations and irritating poultices should be applied. Emetics have been highly lauded, but I have seen little benefit from them. Cathartics are not always required; but if properly selected, will often do good service. In such attacks as occur in winter and spring, (which have been regarded as catarrhal and rheumatic,) and in epidemic dysentery, I do not think them necessary, but would commence the treatment by administering an opiate and diaphoretic, as Dover's powder, or tinct. opii camph. in full dose. We may combine a few grains of calomel, if the cases threaten to protract themselves; and under this

simple management, they will, in a vast majority of instances, yield promptly.

In the other forms of the disease, those namely, which result from acrid ingesta, and such as depend on the impression of malaria, we must employ the class of mild purgatives. In the first, it is usual to prescribe the oleum ricini alone, or with a small amount of ipecac; nor can we advise a better formula. After its operation, the belly should be well fomented, and an opiate exhibited.

In tropical, autumnal, malarial, or bilious dysentery, the best of our cathartics is the mercurial; and the experience of all practitioners, in hot climates, is in favor of its prompt and unshrinking administration. From one scruple upwards of calomel is the dose, which should be repeated with a frequency proportioned to the violence and danger of the attack. I give unhesitating testimony to the remarkable success of this method of treatment. Ptyalism need not be aimed at, and may usually be avoided, the patient's life being secured without it.

It would be unwise to omit in the meanwhile the use of the lancet, if the inflammatory symptoms run high; the opiate, which conduces so admirably to the relief of the suffering; or the cups and fomentations so beneficial locally. Epispastics are by some physicians very much trusted to as adjuvant means of revulsion, when the earlier stage of the case is past. They are applied both to the abdomen and the extremities, and sometimes effect striking results. The employment of opium in very large amount has been found serviceable both in American and European dysentery. Fahnestock prescribed from 3 to 5 grs. at a dose, and Christison has administered 24 to 30 grs. in 24 hours.

Enemata of various formula and qualities, may tend much to the comfort and advantage of the sick. Cold water, unmixed, is among the best, as diminishing pain and irritation. Mucilages, with opium, subdue the griping and tenesmus. The acetate of lead is administered with obvious good effect, both in glysters and by the mouth, where hemorrhage, whether venous or arterial, has occurred.

Dysentery seems sometimes little more than a local affection of the lower part of the intestinal tube, curable by local applications. The nitrate of silver has been used with excellent results in the solution of 10 grs. to aq. \mathfrak{z} i thrown far up the bowels. Kreosote, with or without tinct. opii, grs. 2 to 4 in \mathfrak{z} ss of mucilage, is employed thus also as well as by the mouth. The sulphate of zinc in a starch mixture, 8 grs. to 20 in \mathfrak{z} iv, has been found promptly beneficial. Leeches applied round the anus, tend sometimes to promote the relief of the tenesmus and pains at stool.

The general management of the patient is of great importance. He should be kept as quiet as possible in a recumbent posture, rising as seldom and with as little exposure as may be. He should be instructed to resist with his utmost resolution the urgent calls to stool which annoy him, and the reiteration of which is susceptible of unlimited increase by indulgence. His chamber must be kept specially clean and pure, and his evacuations always removed on the instant. His diet should consist of the lightest mucilaginous infusions, as toast-water, and thin gruel. Pure water is the best drink, though he may be allowed to acidulate it a little, with either a vegetable or a mineral acid, according to his fancy. Everything he takes should be offered in small quantities at a time, as the disposition to stool is apt to be suddenly augmented by a large draught.

Chronic dysentery sometimes comes on slowly as a primary affection, or results from the irritation of protracted diarrhœa; but is far more frequently a consequence or continuance of the acute form. Since the termination of the war with Mexico, we meet all over our country melancholy examples of this sort, among soldiers who were attacked during the service with the severe endemic bowel complaints of that region.

Few diseases are more obstinate, more tenacious, more prone to recur. All our resources must be put in requisition. The general regimen of the patient and his whole course of life must be prudently directed to the avoidance of all cause of irritation. The same medication is demanded as in the more acute cases, modifying the energy of the treatment, and the doses and repetition of the remedies employed, in reference to the less urgency and violence of the symptoms, the debility so universally present, and the tenacious obstinacy which the attack has acquired from the influence of the habit of morbid action. The nitrate of silver is well adapted here; it seems to exert a special influence in promoting the healing of intestinal ulceration. The diet should be carefully regulated, nourishing but unirritating, and the flannel roller should be worn around the trunk of the body. The acet. plumbi, opium, ipecac in small doses, kino, and the other astringents, mineral and vegetable, may be tried in succession or combination, and with perseverance; but our best hope is in a long journey or sea voyage.

CHOLERA INFANTUM.—Under this title physicians have treated of every varied form of derangement of the digestive system and function which can affect early childhood, including, besides true cholera, dyspepsia, diarrhœa, dysentery, scrofulous marasmus, atrophy

from whatever cause, verminous disorders, and even infantile remittent and hydrocephalus. I intend by the appellation, *cholera infantum*, when strictly applied, that modification of bowel complaint which is met with in spring and early summer, and while the process of dentition is going on. I shall, however, follow in some degree the general custom, and take the opportunity to notice the modifications which the tender age and the habits of body of our juvenile patients may render necessary, in the treatment of the diseases to which in them the alimentary tube is liable.

Cholera infantum is most frequently met with in cities, in warm climates and low flat situations, during the sudden heats of coming summer.

Its *causes* are dentition, improper food in all its varieties, including the milk of a pregnant mother and of an unhealthy nurse, thick paps or farinaceous mixtures; general bad management, neglect of proper cleanliness of skin, clothing and bed chamber; want of pure air and sufficient exercise; heat and malaria.

History.—It is not my purpose here, to describe again the cholera, diarrhœa, dysentery, enteritis, &c., which may attack children as well as adults, at any season, and under any circumstances. I shall merely recount the train of symptoms which occur at the age and under the contingencies above specified, in early summer, and during dentition, as I attribute all the peculiarities which demand remark, whether in the course of the attack, the prognosis, or the treatment, to the predisposition of the season, and to the irritation of the teeth in coming forward.

The invasion of cholera infantum, if it be not preceded by, and the sequela or remnant of some of the more acute forms of intestinal disease, is gradual though not slow. There is fretfulness and uneasy restlessness, with moaning—the hand being often applied to the mouth or face or upon the gums, which are perhaps red and swollen; the lips and tongue also exhibit a higher than the natural color. The stools are loose and frequent, and changed from the ordinary appearance; there is thirst and especially at night, more or less febrile excitement. The stomach becomes disturbed, or perhaps vomiting may be one of the earliest symptoms; and the organ is, at last, so irritable, that nothing can be retained. The stools are attended with pain and straining—are more morbid in character and acrid, so as to inflame the skin about the anus. The abdomen is tender on pressure and becomes tumid, while the limbs emaciate, and the countenance grows haggard and ghastly—the mouth is covered with aphthous ulcers, and great languor and feebleness supervene. In some cases the sufferings are unremitting, and

the child cries incessantly, tossing its arms about and drawing up its feet. In others, the patient lies in a state approaching to coma, with its eyes shut, and so insensible to everything, that flies have been seen to light upon the cornea, or enter the open mouth, without being noticed. In some instances, death is preceded by convulsions. The duration of the attack is very uncertain. I have seen a child carried off by cholera—vomiting and purging—in less than twelve hours, but the chronic form I have portrayed, may last from ten days to six or eight weeks, or even longer.

Autopsy.—The appearances after death, vary with the duration and form, and are such as have been described, successively, under former heads.

Prognosis.—Cholera infantum, so called in accordance with the definition given above, although not mortal in very large proportion, is a disease of difficult cure, owing to the permanence of the causes which give rise to it. Transient relief is readily within our reach, but the symptoms are exceedingly apt to recur. The chances of perfect recovery are greatest, where the smallest number of teeth remain to be “cut,” when the constitution of the parents is good, and the child has been previously healthy. On the other hand, we dread the result in weakly children—those born of scrofulous or otherwise infirm parents; those attacked early in spring, and having a large proportion of teeth yet to cut; such as live in low, damp, and ill-ventilated situations; children, whose mothers have become pregnant, and are forced to wean them, or change their nurses at this unfortunate age and season. The case has an unfavorable aspect when the stomach is obstinately irritable, or the bowels are urged with severe tenesmus, and the stools mucous or bloody or sanious, when the tongue, lips and cheeks are fiery red or ulcerated, the belly tumid, the emaciation specially great, and when coma or convulsions occur.

The *treatment* varies with the several forms of disorder included under the present general head. When the vomiting and purging of ordinary *cholera* assail an infant, they must, as in an adult, be restrained by proper doses of anodyne, while fomentations and poultices are applied to the abdomen. I often prescribe a combination of the tinct. opii camph. with an alkali, the carb. potass. for example, in small doses, repeated pro re nata. When *diarrhœa* exists, I administer the mist. cretacea, with or without the tinct. kino. This is the most valuable and least objectionable of all astringents, consisting almost purely of tannin. The acet. plumbi is also extensively adapted. Alum is preferred by some, with the frequent addition of nutmeg, which is supposed to act both as anodyne and aromatic. The white oxyde or tris-

nitrate of bismuth has also been found serviceable. The rind of the pomegranate, and the root of the high blackberry, are also very useful astringents. When *dysentery* is present, I resort to the combination of Dover's powder with calomel and cret. ppt. in doses carefully adapted to the age of the child, aiding the effect with soothing mucilaginous and anodyne enemata, while the belly is well fomented or poulticed.

In the chronic case now under special discussion, the obstinacy or reiterated occurrence of the attack, will render all our resources necessary. In the first place the general regimen must be carefully attended to. The clothes, person and chamber must be kept scrupulously clean, and fresh air, and free exercise allowed. If the child has been weaned while teething at the coming on of summer, he must be put back to nurse; if the mother be pregnant or ill, a sound breast must be procured. If this cannot be done, an *exclusive diet of milk and water*, with a little sugar, must be enjoined. This is the food most readily assimilated by a child unable to masticate, and whose digestion is impaired. If his residence be in a city, an occasional ride into the country, or a temporary change of abode will be of service. The gums, if swollen, should be scarified freely from time to time. Vomiting, which will happen occasionally throughout the case, must be checked by anodynes and alkalies; the latter will be very frequently called for, the prevailing acidity of the contents of the alimentary canal being shown both in the breath and in the stools. The warm bath will be found a valuable auxiliary in procuring comfort and tranquility; when inconvenient, fomentations and poultices must be employed. *Constipation* will sometimes render necessary a cathartic; the most gentle of the class should be chosen. *Oleum ricini* is usually and justly preferred. Rhubarb with magnesia, soda, or potass. and some aromatic, is everywhere in use. Calomel is also easy and mild in its operation, and there is little or no danger of ptyalism in infants, even when we persist in the exhibition of small doses of the mercurial; this is called for, when the stools are chalky and show deficiency of the proper feculent and bilious admixture.

The *prophylaxis* or preventive management of children is, in reference to their liability to bowel complaints, a matter of great importance, and comprises a very extensive regulation of early physical education. Cleanliness, free ventilation, and exercise in the open air, should be enjoined upon all. No child should be weaned in spring or early summer, who has not passed through the perils of teething. No child should be taken from the breast, or allowed any other than a milk diet until he has teeth in sufficient number to break up and masticate his

food, or, where dentition is delayed, has learned to do this with his gums. Much is said of the evils of keeping a child too long at nurse; the opposite evil is at least equally dangerous. After weaning his food must be plain, and he must be taught to eat slowly. No great variety should be allowed, and all such things as tempt to excess in quantity should be strictly prohibited.

INTESTINAL WORMS—VERMES—HELMINTHIA.—As all plants are liable to be preyed on by parasitic plants, so all animals are infested by parasites. Some of these, probably numerous species, are of themselves and in the nature of their usual connection innocuous, and become hurtful, if at all so, merely by their inordinate increase. Others are either products of disease, or occasion disease uniformly by their presence. Examples of each kind may be offered among the subjects of the present discussion. The worms which ordinarily inhabit the human intestines are the *lumbricus*, the *ascaris*, and the *tænia*. The first of these would seem to be always, or almost always an inhabitant of the alimentary tube, exciting no disturbance, and attracting no notice whatever, unless when unduly multiplied in number, or when, from some foreign cause of derangement, the body to which it has attached itself has lost something of its proper tone and vigor of health. The tape worm on the other hand is always annoying, and sometimes fatally irritating; while the *ascaris* may be considered as in a certain degree hurtful wherever it exists, though its power to disturb greatly depends upon its multitude. The other varieties of intestinal worms described in systematic works, I shall not regard; they are rarely met with, and deserve to be ranked rather as objects of scientific curiosity than of pathological interest.

Prof. Lanza of Naples mentions the curious fact that “worms of the species *tricocephalus dispar* were very constantly found in the intestines not only of cholera patients, but of those who died of other diseases during the prevalence of cholera in that city in 1836 and 1837, and were not found after the cessation of the epidemic.”

The *lumbricus* is round, thickest in the middle, and tapering to both extremities, of white or slightly greenish hue, with a wrinkled or annular surface, and from five to twelve inches long. It enjoys distinction of sex, is of social habits, and chiefly infests children from two to ten years of age, being rarely found in any large number in infants while at the breast, or in adults. They are so universally to be detected in the bowels, that Parr, Rush, and others, considered them as regularly belonging to the healthy animal economy.

The symptoms which are supposed to result from their presence and

injurious agency are in general somewhat as follows: the child is languid and loses flesh; the appetite is irregular, sometimes voracious, but often deficient, the tongue is furred, and the breath fetid, the bowels are usually loose with griping and straining, and the stools morbid and offensive; the abdomen is hard, and tumid and painful, the skin of the face and feet puffed; the little patient picks his nose and sleeps uneasily with starting and sometimes screaming; irregular irritative fever may supervene; there is cough perhaps with dyspnoea, and not unfrequently convulsions *quasi epileptic*. "There is scarcely a disease or symptom of disease," say Rush, "belonging to Cullen's class of neuroses, which is not produced by worms." I had rather refer to them as among the most potent *exciting causes* of all forms of intestinal and nervous disease, to which the subject may have become *predisposed* in any manner whatever.

When the above train of phenomena, or any notable number of them concur in a given case, it will be proper to manage it by a prompt resort to anthelmintics or vermifuges. Of these, the best are the *spigelia marilandica*, *melia azedarach*, camphor, and *spts. terebinth.*, and it is worthy of remark, that they often put an end to the appearance of disease, even when they fail to expel worms as we had expected. Camphor is especially deserving of our confidence; it is distasteful to all tribes of insects, worms, &c. In a dilute aromatic infusion it is also a good tonic, and is readily taken by children. The others are in very extensive domestic use, and very serviceable. After a brief exhibition of any of them, it is usual to administer a cathartic. I see no advantage in the usual selection of the drastics, but prefer the mildly efficient articles, such as the *oleum ricini*, with or without *merc. dulc.* I dislike the promiscuous and repeated administration of anthelmintics, merely as such. Where the symptoms of irritation point chiefly to the brain and nervous system, I would depend upon the incidental vermifuge effect of purgative formulæ, with such other remedies as may be indicated. When the digestive tube is much disturbed, I would resort to the narcotics, *spigelia*, *melia azedarach*, &c. Of course, there are cases in which a combination of these plans may be called for.

The *ascaris*, thread worm, maw worm, inhabits the rectum chiefly, though it is occasionally found in the stomach. It is small, filiform, slender, tapering to both ends, of white color, and exceedingly vivacious. They create an intolerable pricking and itching at the anus, but are occasionally found in the child's bed, having crawled from his body in great numbers, without any notice of their presence being previously given. In the stomach, they excite distress and oppression, the cause

of which cannot be known, unless they are expelled by vomiting or by stool.

Aloes is the best vermifuge here, being noxious and disgusting to the ascaris. It is used both by the mouth and enema. A small candle or bougie, smeared with mercurial ointment, being passed into the rectum, will dislodge them. Castor oil with camphor, is also useful in getting rid of them.

Tenia, or *tape worm*, is distinguished into three or four sub-species, is in form flattened, separated with numerous joints, each containing an ovary; its color is whitish or light yellow. It is hermaphrodite, attains a great size, some hundred feet having been expelled by a patient. I have seen ten yards brought away at once. It is difficult of dislodgement, the head, which is towards the upper part of the intestines, being furnished with fangs or hooks, which it fixes into the mucous membrane; inhabits chiefly the smaller intestines, and is found almost exclusively in adults. The other worms die soon after leaving the body, but the tape worm is exceedingly tenacious of life. Its presence is productive of very great pain and uneasiness in the belly, with diarrhoea and emaciation, but we have no diagnostic until the gourdseed-like joints are detected in the stools. Many remedies are offered to procure its expulsion. I have most confidence in the bold and free use of the spts. terebinth. \mathfrak{z} ss to \mathfrak{z} i at a dose, either with or without oleum ricini. Calomel, filings of tin and of pewter, an amalgam of mercury and tin, the male fern, the *dolichos pruriens*, pomegranate rind, the min. solut. fowleri, camphor and aloes are used, and a great many other articles, but, I fear we are bound to acknowledge, with no flattering success.

HEPATIC AFFECTIONS.—The liver is, apparently, the most important of the collatitious viscera, which aid in the digestion and assimilation of our food. It is an important excretory organ also, carrying off a large proportion of the effete carbon and hydrogen from the system.

The bile which it separates from the blood by constant action, is alkaline and carbonaceous; containing very numerous and varied elements. Golding Bird describes it as “a compound of an organic electro negative body” “with soda or bilate of soda; cholesterine, fatty acids, mucus and biliphein.”

Bernard informs us that sugar is always present also in the liver. The special uses of its secretion, the bile, are not known with precision. The organ is the largest in the body, and one of the most uni-

form of the animal structure ; its diseases always affect the general health in a remarkable manner.

It is subject to *hypertrophy*, which when simple must be ascribed to repeated or protracted congestion. Gooch tells us it has reached the immense weight of 28 lbs. ; its average being between 3 and 4 lbs. It has been *atrophied* to the bulk of the kidney, though hepatic atrophy is rare.

A *fatty* enlargement is more common perhaps than simple hypertrophy ; it is analogous to the state in which the liver of the goose is found in the *paté de foie gras* of Strasbourg. It may be ascribed to analogous causes in most cases ; indolence or want of muscular exercise, gluttony, and high temperature. It occurs in the latter stages of phthisis, and perhaps of some other diseases, as a vice of nutrition in part, and partly as the result of the failure of the organ to excrete the carbon and hydrogen brought to it by the veins of the portal system.

Cirrhosis, hobnail or nutmeg liver, is so named from the appearance presented at the autopsy. The organ looks like a membranous bag of small round bodies, nutmegs, large shot, marbles, &c., and when cut into is of deep orange yellow hue.

It is variously described, as an "inflammatory hypertrophy of the acini ;" as "depending on partial congestion of the parenchyma of the lobules," as a hypertrophy of the capsule of Glisson.

I have scarcely ever seen it but as the consequence of protracted debauchery and intemperance.

Tubercles are often found in the liver ; so are *hydatids*. *Cancer* attacks it. It undergoes *softening*, and *induration* schirrhous and osseous.

It is very liable to inflammation, *acute* and *chronic*, and it has been much disputed, whether the difference announced in these terms may be merely referable to the time occupied by the morbid action and its results, or consists in some specific distinction of nature or locality.

Acute hepatitis has been attributed by one class of writers to a diseased state of the ramifications of the hepatic artery, the nutrient vessel of the organ ; and the *chronic* form to a similar condition of the minute branches of the *vena portæ*, supposed to be engaged in the business of secretion. Others regard the first as an inflammation of the investing serous membrane of the viscus ; and the second as an inflammation of the parenchyma of the liver.

Acute hepatitis commences usually with febrile rigors, followed by flushing of the face, with hard, abrupt, quick pulse. There is a sharp pungent pain in the right side under the margin of the ribs, shooting to the back and to the top of the shoulder. The pain is permanent, but is increased by a deep inspiration ; it is sometimes, though not

often, attended with nausea. The respiration is hurried and uneasy, and a short dry cough comes on and harasses the patient; there is much thirst; the skin is hot and dry, the tongue is thickly furred with a yellow crust; the bowels are usually costive and difficult to be moved.

Diagnosis.—May be confounded with pleurisy, which also presents severe pain in the side, with dyspnoea, cough and fever. In pleurisy, however, the cough is one of the earliest symptoms, while it does not invade until some time after the access of hepatitis; nor is there in the former the *pain at the top of the shoulder*, so usually attendant on inflammation of the liver; the seat of pain in the latter, is also lower down the side, and may be traced by the hand under the cartilages of the ribs. Exploration of the thorax by auscultation and percussion, if properly attended to, will preclude all chance of error.

Causes.—The predisposition seems to be built up by high and long continued heat, the influence of which upon the liver, is attempted to be accounted for by various speculations. The ordinary exciting cause is almost always a notable alternation of temperature, exposure to damp or comparative coolness. Excesses of all kinds, it is said, may bring on an attack.

Prognosis generally favorable. The principal danger lies in the tendency to recurrence, succeeding attacks becoming less and less manageable. The acute is, also, very liable to run into or produce the chronic form of hepatic disease. It may, however, terminate the life of the patient, like other inflammatory affections, by exhausting the vital powers; or it may run promptly into suppuration. This last result is known by the repeated chills or rigors which supervene; there are sweats about the face, with a pulse small and very frequent; there is also a sense of weight or heaviness in the right hypochondrium. The event is usually unfavorable; but the abscess may empty itself—1st, by the lungs, adhesions connecting the inflamed viscus with the diaphragm, and the portion of the lung above it, and absorption or ulceration making an outlet for the pus which is coughed up; or 2d, by similar adhesions to the stomach or intestines, when it may be passed by stool or vomiting; or 3d, it may adhere to the parietes of the abdomen, and point externally, as I have seen in two attacks in the same individual, a female. In all these cases, though life may be preserved, the health of the patient is irretrievably impaired; digestion and fœcification are always afterwards imperfect.

Treatment is very simple, and consists almost exclusively of active depletion. Venesection should be carried to the fullest extent, and leeches or cups applied to the right hypochondriac and epigastric regions. The saline purgatives are to be freely administered; and after

their abundant operation, the skin is to be kept moist with perspiration, and the pulse low by the use of antimonials. Should the hepatic pain continue after this depletion, and fomentations fail to give relief, a large blister should be put over the part.

When the patient is seen early in the attack, these measures will rarely, if ever, fail to remove it. But if his strength should sink, or suppuration intervene, we must change our plan of management, and support him by the cautious employment of tonics and stimulants, and a generous diet, until the matter be discharged in one of the modes above alluded to.

Chronic hepatitis is a form of disease of not unfrequent occurrence among us. It is sometimes, as has been said, a sequela of the acute variety, but more commonly develops itself independently, gradually and obscurely. With much disorder of the general health, similar to what has been described under the head of dyspepsia, there is a sense of weight and fullness in the right side with some uneasiness or *pain at the top of the right shoulder*, or as the left lobe of the liver may be affected, these may be felt on the left instead of the right side, though much more rarely. The complexion is sallow, and the tongue encrusted with a whitish or brown fur, while the sides and edges are of a dark red, or the organ may have a contrasted, flabby and pale appearance, looking soft and sodden and somewhat swollen. The strength fails, and there is extreme dejection of spirits, with ennui and morbid vigilance. The bowels are irregular, costive, or loose, with ill-conditioned evacuations. The pulse is quick and chorded, though small. A febrile exacerbation, more or less marked, takes place every evening, and a dry hacking cough often attends.

Cause.—Heat and malaria predispose to this affection of the liver, in warm climates; it occurs in persons who have been subjected to no special or notable mode of excitement. It follows violent or obstinate attacks of intermittent and remittent fever. It is, however, commonly met with in the intemperate, everywhere.

Prognosis is unfavorable. Perfect recovery of health, after a liver complaint of any duration, is not frequent, the patient remaining dyspeptic, and liable to recurrence of his hepatic disorder. Among its ultimate consequences too, are icterus and dropsy. It is more apt than the acute form to run into suppuration; besides which, it has a peculiar termination in a sort of permanent enlargement with induration, technically spoken of as *schirrhus*. This is readily discoverable on examination by the hand, the fingers being bent and turned upwards, while the patient is leaning slightly forward to relax the abdominal parietes.

Diagnosis, not difficult if careful palpation and exploration be instituted. The organ is felt more or less enlarged, a little tender to the touch, with its margin more elastic than natural, and more firmly defined. These points will be less notable, of course, when the left lobe is the seat of disease. But I have never seen an instance in which the pain at the top of the shoulder was wanting; though I am aware that Stokes and others record such cases.

Treatment.—If the strength admit, venesection should be employed, but with some caution. Topical bloodletting is almost always advisable, and may be repeated *pro re nata*. The bowels should be moved from time to time, if constipated, by mild but efficient cathartics. Beyond this, we must hope for permanent advantage in an alterative course. The mercurials are almost universally confided in. The blue pill or calomel in small doses, should be administered until a moderate ptyalism is induced, and this should be kept up for a time, during which the morbid symptoms will generally be found to yield. I would administer of calomel one grain, or of blue mass from three to five daily, scarcely exceeding that amount in ordinary attacks. Much harm has been done by hasty and repeated salivation, which when severe is likely, I think, to do little service. Other alteratives have also been proposed, as taraxacum, and the nitrous and muriatic acids; the combination of the two, the nitro-muriatic, has been much used in India, both internally and as a bath. One of the best of our alteratives is iodine, in very dilute solution. It is best given, perhaps, in combination with the mercurial, as in the deutiodide of mercury and potassa.

When the liver is tumid and heavy without pain, epispastics may be repeatedly applied over it, and the galvanic and electric currents passed through the hepatic region.

In an obstinate case, we should advise a visit to some of our watering places, whose fountains, like those of Saratoga, unite a moderate purgative effect, with the tonic pungency of the carbonic acid gas, and the mildly alterative influences of iodine in minute proportions, are most useful in hepatic diseases. The proper employment of natural thermal waters may be made highly beneficial. To obtain their good effects the patient should remain in them with his whole body immersed for hours at a time, not merely bathing as is usual. The therapeutic influence depends upon the determination to the vessels of the surface kept up by the long continued fomentation, moist heat, applied, relieving the internal determinations and congestions. The eclectic practitioner will here as elsewhere, avail himself of the lessons taught us by the hydropathist. There is much good done by the jour-

ney and voyage thither and homeward. In the meanwhile the strictest temperance must be enjoined, and the patient cautioned against indulgence in improper habits of every kind. He must live on the plainest food, retire early to rest, abstract his mind as much as possible from care, and guard against all passion and emotion. His clothing must be warm and judiciously adapted to protect him from the vicissitudes of the season.

ICTERUS—JAUNDICE.—This term is used to comprehend the series of symptoms which result from obstruction of the passage of *bile* from the liver into the alimentary canal.

The importance of this fluid in the process of alimentation, the perfect digestion and assimilation of chyle, and the fœcification and expulsion of the rejected portions of food taken, is well known. The want or deficiency of it, is productive of serious evils. But bile is not only a useful *secretion*; it is also an indispensable *excretion*, containing certain essential constituents which are required to be regularly and unceasingly eliminated from the system. Its non-secretion, or at any rate the re-absorption of its ingredients into the vessels, and their admixture with the circulating mass, is hence assumed to be attended with injurious and well ascertained consequences.

These evil effects are still farther liable to modification, and additional suffering may result from the cause and nature of the obstructions present, all which demand in turn a careful consideration.

Cases are on record of enormous accumulations of bile in the gall bladder. Cline gives us the history of a tumor of this sort in the side, which when opened discharged 20 ozs. of bilious matter, the patient dying 7 days after. Cheston describes a case in which, without jaundice, the gall bladder was found to contain *two quarts* of bile; and Van Swieten a still stranger one, of a lad 12 years old, whose gall bladder held eight pounds of thick bile.

1. When the function of the liver is interrupted, and bile no longer enters the duodenum, the patient labors under anorexia, dyspepsia, costiveness; the stools, when any are passed, being unnaturally pale or of clay color. The complexion and eyes are yellow. The tongue is covered with a thick brownish fur, and a bitter taste pervades the mouth. There is extreme mental dejection, with physical inactivity and feebleness. The suffusion of the skin and eyes deepens to an orange hue, and every solid and fluid of the body is of the like tint, "except," says Heberden, "the milk." Marsh has seen the milk yellow, and of bitter taste,

Poets and philosophers have affirmed the fact, and made it a subject of frequent allusion, that jaundiced persons see all objects yellow. This is a rare circumstance, but Good affirms it to have been true in his own case; here the very humors of the eye must have been tinged by the resorbed bile.

There may or may not be certain local symptoms denoting hepatic disorder, such as a sense of weight and fullness in the right hypochondrium, pain at the top of the shoulder, &c. These, though dwelt on by authors, are not essential, and indeed are totally wanting in the great majority of such cases as I have met with.

In the simple form of icterus just described, I suppose the obstruction to the flow of bile into the intestinal tube, to result from a torpor or loss of tone and defect of action in the biliary ducts, which fail to take up and transmit thither, as is their office, the fluid secreted by the sanguineous capillaries, the ultimate ramifications of the vena portæ or of the hepatic artery. It is therefore of necessity re-absorbed by the radicles of the hepatic veins or lymphatics, and passes into the circulatory current.

The *causes* of this condition of the liver are very various. It may result from chronic hepatitis, or follow the congestions which form so prominent a part of the history of malarial fever. I have seen marked cases occur during the convalescence from bilious remittent and intermittent; nay, it may prevail, as if epidemically in certain unhealthy seasons, showing the influence of febrile miasm upon the liver and its functions. In the autumn of 1824, great numbers of persons, including a majority of the convalescents from bilious and yellow fevers of that year, were attacked with jaundice, in the city of Charleston.

It sometimes follows the application of very transient causes. Mental emotions, anxiety and fear especially, will produce it promptly. I have known it follow an attack of seasickness of 3 or 4 hours' duration.

Prognosis generally favorable. This mild grade of icterus is seldom dangerous or fatal, and for the most part easily cured.

I am inclined to the opinion, however, that some at least of the more serious of these attacks are owing to a closure, more or less complete, of the valvular opening of the ductus communis choledochus, by swelling and thickening of the mucous lining membrane of the intestinal tube, in obscure chronic or sub-acute duodenitis. Of course, such cases will be more obstinate and tenacious, not admitting of relief until the original duodenite has been removed by proper measures.

Treatment.—In the early stages of the simplest cases, an active emetic will generally procure entire relief. If anything farther be

necessary, a mercurial or aloetic cathartic, with energetic exercise and cheerful occupation should be advised. Horseback riding is often of itself sufficient for a cure. Frictions with the hand, or a flesh brush, on the right side and over the abdomen, are serviceable. A current of galvanic or electrical fluid may be directed along and through the region of the liver.

2. The most important modification of icterus, and one not unfrequently met with, is that characterized by the presence of biliary calculi.

Here the attack is sudden and full of extreme suffering. The patient complains of intense pain, coming on without warning, often after a full meal, at or near the pit of the stomach, extending across toward the right side, with nausea soon increased to violent vomiting, and accompanied by a sense of abdominal distension. The pulse is little affected. There is extreme anxiety and despondency. The epigastric pain is usually permanent, and intolerably severe, and pressure at that region cannot be borne. It may in some instances subside or remit after a time, and return with great violence, and this may be repeated until the sensibility of the duct is worn out; or inflammation may be excited and transmitted along the duodenum and intestines generally. The bowels are costive and flatulent. The skin and eyes soon become deeply suffused.

The symptoms thus described are attributed to the passage through the duct leading from the gall bladder to the duodenum, of biliary calculi, or concretions of various constitution, size and form. These bodies are often found in great numbers in the gall bladder, and even in the bodies of individuals who have never shown, during their lives, any symptoms of jaundice. We find them occasionally in the stools of our patients, which ought with this view to be carefully examined. They are divided into, 1st. Cholesterine calculi, composed almost entirely of cholesterine, an animal substance somewhat resembling adipocire or spermaceti; these are white, lamellated, shining and crystallized. 2d. The mellitic, the most common; brownish, composed of cholesterine with picromel and other animal matters, contained in bile deposited in concentric layers. 3d. Calculi of inspissated bile, of dark yellow color and somewhat rare. Besides these I have seen calculi of a beautiful green, so dark as to seem almost jetty black, with highly polished surfaces; others still have been described. They are seldom round, but polygonal and angular. It is not known how they are propelled from the gall bladder, where they are comparatively harmless, into the duct which they so vehemently irritate. We must not omit to remark, that the very same symptoms occur in many in-

stances in which the most careful examination of the stools has failed to detect the passage of a calculus, and when fatal no such concretions have been found either in the duct or the gall bladder. They are here attributed then, to mere spasm or constriction of the duct, occasioned probably by the irritation of vitiated and acrimonious bile.

Prognosis doubtful. We cannot explain the formation of these concretions; but they are seldom deposited singly, and they seem to be connected with a condition of the liver and certain alterations of its secretion, which, as we do not clearly comprehend, we cannot readily remove. Such attacks are apt to recur in the same person. I saw the repetition in one patient productive of enteritis, and in this way indirectly fatal.

Treatment.—It is not merely the mechanical distension of the duct to which we must ascribe the sufferings endured by the patient, but more probably a spasmodic contraction of its irritated coats, which close upon and thus detain the gall stone. To relax this constriction, we use the lancet promptly and freely, administer *opium* in the largest doses, and place the patient in the warm bath. Under these circumstances I would now produce complete relaxation by the prompt use of chloroform or some other anesthetic. The bowels are to be promptly moved, by efficient though mild cathartics and enemata, and large fomentations or poultices kept to the abdomen. To meet the first threatenings of inflammation, we must apply cups or leeches to the right side and epigastrium, and continue the effect of purgatives moderately. This last measure must indeed be persisted in for a few days in a majority of cases, to remove the gastric and general uneasiness left by the attack. To prevent a recurrence of the symptoms, it is necessary to restore the liver to its proper condition and action, in order that a healthy bile may be secreted and poured into the intestines. For this purpose no better means are in our hands, than those recommended in the remedial management of chronic hepatitis.

In ancient times, icterus was divided into species in reference to the *color* of the bile discharged, and of the body of the patient. Thus even Good recognizes *yellow*, *black* and *green* jaundice; and Marcard and Baillie sanction this view. I have met with a case of this last named variety, well marked. The adnata of the eye was *green*, the alvine evacuations, the saliva, and the bronchial mucus, were also deeply green. My patient was a black woman, convalescent from small pox. The event was fatal, as it is asserted to be, uniformly, by the writers above alluded to.

SPLENITIS.—Enlargements of the spleen are common in all hot and malarious regions, and more especially frequent as connected with intermittent fevers. They are generally regarded as congestive, the result of repeated succussions of the cold stage. But some of the French pathologists deny their passive character, and hold that they are rather the causes than effects of intermittents. Some of the facts affirmed by Piorry and others as to the rapid enlargement and subsidence of the spleen, are truly astonishing. Piorry maintains this spontaneous or *erectile swelling* to be the proximate cause of ague and fever; he found the solution of the sulph. quin. to effect its *contraction* within 40 seconds. The same apparent influence is said by Gouraud to follow under the same circumstances from drinking almost any fluid; Corrigan found it producible by moderate doses of sulphuric ether.

The ague cake, or ordinary indolent enlargement of the spleen, occasionally puts on an inflammatory condition, rarely acute; I have seen one case terminate promptly in suppuration, the spleen becoming vehemently inflamed during an attack of scarlatina, following a protracted intermittent. I have met with two instances of very great enlargement and chronic inflammation of the spleen, independent of any malarial fever. The dilatable tissue of this organ is liable to rapid and monstrous intumescence, and extremely varied degeneration. It has been seen from ten to thirty-three pounds in weight. It is indurated, tuberculated, softened, dissolved, merely hypertrophied, schirrhous, full of abscesses. Some of the victims of the famous "Walcheren fever" had the spleen, a mere pulpy bag of three to five pounds weight, filled with a liquid like tar; and a similar dissolution occurs in the malignant fevers of Italy.

Splenitis, in all its forms, is tenacious and difficult of cure. Topical depletion at first, and afterwards persevering counter-irritation by blisters, &c., purgatives of mild character frequently repeated, mercurials cautiously used—such is the prescribed course of treatment. Iodine is sometimes serviceable. I prefer the deutiodide of mercury and potassium. The ungt. iodinii may be rubbed on the side. The Hindoos, we are told, administer vinegar and steel. I have found advantage in the exhibition of the tinct. acet. æth. ferri.

PAROTITIS—CYNANCHE PAROTIDÆA—MUMPS.—By this appellation we denote a peculiar inflammation of the parotid, one of the salivary glands. It is attended with fever, headache, thirst, furred tongue, restlessness, and depression of spirits. The parotid is swelled and painful, impeding speech, deglutition, and mastication. One side only is affect-

ed in a majority of cases—now and then both sides. It rarely attacks the same subject more than once, and shows a peculiar tendency to metastasis, or translation of inflammation from the part first affected to remote parts. In females, the mamma, and the testis in males, are apt to be severely attacked; in both sexes the brain also suffers occasionally. This is denied by some writers; but I have myself known three instances of violent phrenitis occur on the subsidence of the original swelling.

Cause.—It is contagious, and sometimes prevails epidemically.

Prognosis favorable. The inflammation usually terminates in perfect resolution, suppuration of any of the glands affected being extremely uncommon. In a few there has remained an indurated enlargement of the part; and rather more frequently, a certain degree of softening of the testis, and loss of bulk has been observed. The greatest danger is to be dreaded where phrenitis has supervened.

Treatment.—In children, the swelling should be rubbed gently with a mild stimulating embrocation, and kept lightly covered. In young and robust adults, venesection and topical bloodletting by leeches may be required. This is absolutely necessary where there is metastasis to the more delicate and important organs above indicated. Here also the free use of the active cathartics is demanded; and when this has been carried to the full extent, the undue force of the circulation must be still farther reduced by nauseant diaphoretics, as ipecacuanha and antimonials.

The glandular indurations, when they remain, should be treated, while tender and irritable, by leeching and soft tepid poultices; when they have become indolent, by iodine lotions and embrocations. Iodine should also be exhibited internally, in diffused aqueous solution.

When metastasis has occurred to the brain, as shown by wild delirium, &c., the case must be managed by the energetic application of the treatment recommended under the head of phrenitis.

SORE-THROAT—ANGINA PHARYNGEA—PHARYNGITIS—CYNANCHE ANGINA.—This malady, which after all the attempts to give it a name, is the best designated by its ordinary appellation, is one of our most frequent diseases. It is essentially pyretic, and is properly divided—in reference to the type of fever attendant upon it, and the state of the general system in which it occurs—into *inflammatory* and *malignant*.

Inflammatory sore-throat is farther divided into superficial, ulcerative, and phlegmonous; the first affecting the lining membrane of the posterior fauces and isthmus, the uvula, tonsils, pharynx, and upper part

of the esophagus, without lesion of the surface ; the second affecting the same tissue, with ulcers more or less deep and extensive ; while the third, as the phrase imports, affects not the surface merely of the lining membrane, but the tissues beneath, exhibiting abscesses in the tonsils, and on the back of the pharynx.

1. Superficial inflammation of the throat, is attended with redness of the diseased part, its vessels being enlarged and distended, as in conjunctivitis. There is a sense of dryness, with pain in swallowing—the uvula is relaxed, and sometimes edematous, occasioning a tickling and disposition to cough. When the inflammation is great, there is sometimes otitis, with severe pains in one or both ears, attributed to its extension along the lining membrane of the eustachian tube.

It occasionally happens, whether from any peculiarity in the nature of the inflammation present, or merely from its intensity, that a layer of whitish or yellow lymph is thrown out upon some part of the surface, to which it adheres, but perhaps not very closely, and is usually taken for an ulcer. It resembles the membrane formed in croup, in diarrhœa tubularis, &c. It seems to be connected with an obstinate and tenacious form of morbid action, which may run into a chronic state. Again, there is often a thick, condensed, and highly offensive mucus, collected in small hard lumps in the foveæ or crypts, which indent the surface of the tonsil. They are apt to be mistaken for ulcers. I sometimes press them out with a probe, to the great relief of the patient. If they remain in the cavities in which they are formed, they occasion swelling and pain, and perhaps are loosened by a slight suppuration and hawked out.

2. *Ulcerous sore-throat*, *cynanche ulcerosa*, presents also various modifications, the ulcers assuming very different aspects in different cases. Some of these varieties, it is well known, are peculiar and characteristic, in accordance with the specific state of constitution of the patient, as in scrofulous and venereal maladies. But of these I do not propose to treat in detail. That which is the subject of present discussion, and is connected with ordinary inflammation, under common circumstances, is at first irritable and very sharply painful ; its surface is gray or whitish, with red points—the edges being swollen, it seems excavated ; it is disposed to extend itself, in all directions, with a rapidity proportioned to the intensity of the inflammation connected with it. After a time, if the ulcers do not heal, they become indolent, stationary and chronic ; while the sympathetic constitutional irritation subsides wholly or in part. They occasionally extend slowly down the esophagus, healing at some points and spreading at others—the

cicatrices where they heal, contracting and rendering deglutition exceedingly difficult and painful.

3. *Phlegmonous sore-throat*—*cynanche tonsillaris*—quinsy.—On looking into the throat, if we find one or both of the tonsils projecting forward, with a fiery red and smooth surface, we have reason to fear the formation of abscess within their substance. This is to be dreaded, as occasioning great and protracted suffering, by the impediment thus offered to deglutition and respiration—so great, indeed, as sometimes to threaten suffocation. Even when we succeed in procuring resolution, there is often left an enlargement and induration of the tonsils, which impair both the speech and hearing. There is, now and then, though rarely, abscess formed at the back of the pharynx; and we have on record a few terrible instances of abscesses even in the esophagus.

Causes.—Sore-throat, in its several varieties, is excited by exposures to vicissitudes of weather and alternations of temperature—to currents of cool and damp air, showers, &c. In some individuals and families, there is special predisposition to it.

Prognosis, generally favorable. In the adult of good constitution, there is little danger, though fatal instances are now and then met with. Chronic ulcer of the throat, may wear out the powers of life by the constant irritation, and by its extension along the esophagus.

In the child—the infant—sore-throat is a more serious disease. Even the superficial inflammation is not without some risk, being, at this age, readily convertible into the ulcerous; and if the ulceration extend into the larynx, the case becomes a very serious and alarming one. The membranous sore-throat described in a former paragraph, is perhaps even more dangerous. I scarcely know a more formidable disease than this modification of sore-throat, combined with laryngitis or croup.

“The exudative inflammation” of diphtherite, is correctly affirmed by Dr. H. Green, to commence “invariably in the superior portion of the respiratory passages and extend from above downward.” He justly lays great stress “on the physiological and pathological relations which exist between the throat and the respiratory passages,” which he considers of great intimacy and importance.

I do not remember to have met with the phlegmonous form, quinsy, in a very young child.

Treatment.—In a robust adult, it may be necessary to bleed freely from the arm. Local bloodletting by leeches, is almost always useful. Crampton and others propose to carry them to the inflamed spot.

Emetics are often given in the first stage, and with advantage, if the stomach is oppressed, the tongue foul, and the breath fetid, with-

out vomiting. Cathartics, especially the saline, are almost universally required. They may be combined with diaphoretics, as, at first, ipecacuanha and antimony, and afterwards with the infusion of serpentaria or seneka. When farther depletion is unnecessary, we may reduce the force of the circulation by moderate doses of nit. potass., combined during the day with an antimonial and at night with Dover's powder. Various local applications are recommended. Velpeau's suggestion of the application of powdered alum, has proved very useful. The remedy, he himself says, however, is only of benefit in the superficial pharyngitis, it does harm in the tonsillary or phlegmonous.

I disapprove of all gargles in the early stage, as painful and irritating. The steam of water at a moderate heat may be inhaled, to relax and soothe the parts, and procure a flow of saliva and mucus. After a time, the sedative and mildly astringent solutions may be of some advantage, more especially where there is ulceration. Nit. potass., alum, sulph. zinc, acet. plumbi, and the mineral acids, are much used. Infus. cinchonæ and myrrh are among the best. This may require special attention in the case of children, the foul secretions from whose ulcerated fauces, it may be necessary to cleanse with a syringe, or a bit of lint attached to a probe.

Where any membranous deposit appears upon the surface, we must resort to the nitrate of silver. A strong solution of 10 grs. to ℥i in an ounce of water, should be applied by sponge or lint freely to the parts affected, and repeatedly until their condition is changed and lymph no longer effused. The employment of the stimulating gargles, so much in vogue, requires judgment and discrimination. It cannot be denied, that there are cases in which, even from the first, the infusion of cayenne is beneficial, but it is difficult to point them out; and it is a good general rule to abstain from the use of these washes, until the ulcer has become obviously indolent, and the case assumes a clearly chronic character. In such instances, good is sometimes done by washing with the solution of the sulph. cupri, and by touching the ulcerated surface with the nitrate of silver. These cases farther demand the administration of alteratives and tonics. A mild mercurial course, as of blue pill or merc. corros. sub., may be alternated or combined with the use of the bark and the mineral tonics, of which the best is the tinct. mur. ferri.

The uvula is sometimes permanently elongated or relaxed, so as to fall upon the back of the tongue, and keep up an harassing cough, which, in some cases, has been the precursor of phthisis. To prevent this, it should be amputated. When the tonsil is so much enlarged as to impede the respiration, we must not hesitate to pass a lancet freely into

and across it. If an abscess has formed, we evacuate the matter at once ; if not, we give relief by diminishing the bulk of the tonsil, and reduce its inflammation by emptying its vessels. If the tumefaction be so great that the patient is in danger of being suffocated, an opening should be made in the trachea, until the tumor subsides or suppurates. The tonsils remaining indurated and enlarged, they should be freely scarified in all directions, or completely extirpated.

Malignant sore throat, cynanche maligna, may be described as a combination of inflammation of the throat with the lowest grade of typhous fever. Sporadic cases are occasionally met with, but it is apt to appear as an epidemic. Its proportional mortality is frightful. Its subjects are generally young persons and children from infancy to puberty.

Symptoms.—The attack is ushered in with nausea, and sometimes vomiting ; there is oppression, restlessness, anxiety ; the voice is hoarse or husky, the skin dry and constricted ; there is thirst ; the pulse is small, compressible, very frequent ; there is great languor and prostration. It is not in every case that there is any pain or difficulty in swallowing, but on examining the throat we find a dusky redness overspreading the whole surface of the pharynx, fauces, tonsil, and uvula. One or more ash-colored ulcers may appear, which spread rapidly, with little or no pain ; or, as is much more common, there is an exudation of plastic lymph covering the inflamed surface, to which it adheres pretty firmly. Pieces of this membrane are frequently thrown off, dark colored and offensive, with a foul discharge from the surface. An efflorescence often shows itself on the skin, but by no means uniformly or even in the majority of cases, as affirmed by European writers, who often confound scarlatina anginosa and maligna, with our present subject. As the disease progresses the inflamed parts may assume a gangrenous disposition, becoming livid or even black, with great fetor. Diarrhœa comes on, and the patient soon sinks exhausted.

The *cause* of this malignant pestilence is unknown. It is usually epidemic in its prevalence. It is alleged, also, to be contagious.

The *prognosis* is highly unfavorable. The younger the subject, in general, the greater the danger. In early life there is special liability to the extension of the ulcerous action and effusion of lymph into the larynx, a combination almost always fatal.

In older subjects we judge of the degree of risk as in typhous fever, with less reference to the local affection.

Treatment.—The general management of the patient is similar to that recommended under the head of typhous fever. It is the general practice to premise an emetic. Ipecac is perhaps the best, but some prefer the antimonial, as more active, and others regard the sulph.

cupri as exerting a special efficacy. I see no great objection to either. Our permanent reliance is upon the class of stimulating diaphoretics, which may be employed in turn, the infusion of serpentaria or seneka, the combination of carb. potass. with the tinct. opii camphorata, the acet. and carb. of ammonia, the nit. ether and the infus. cinchonæ; while a generous and stimulating diet is allowed, with wine in proper amount if necessary, the bowels in the meantime being gently acted upon by some mild cathartic; I prefer to all others the combination of merc. dulc. with pulv. rhei in small doses and at proper intervals.

Of local applications, I regard the blister and the leech to be alike of equivocal effect, and prefer the mustard poultice to either. The throat and mouth must be kept scrupulously clean. The ash-colored spots must be touched with the strong solution of nitrate of silver occasionally and the foul secretion washed off with the syringe, or, if the patient can use them, with gargles. These should be somewhat stimulating. The infus. cinchon. with myrrh or camphor, with the mineral acids, is much to be confided in. The infusion of cayenne pepper is greatly in vogue, and often does good service. Besides this very useful local application as a gargle, it is perhaps our best internal stimulant, and should be administered freely. The infusion should be preferred as strong as the patient can take without suffering, and containing a small proportion of common salt. When its pungency cannot be borne, the pulv. capsic. should be prescribed in substance, made up into pills or covered in capsules of jelly.

DISEASES OF THE RESPIRATORY SYSTEM.

The knowledge of the objective phenomena which manifest the condition of the organs of respiration, is highly important to the practitioner. These *physical signs* are various in their character, and are to be ascertained by the following modes of investigation.

I. Inspection of the outline, figure, and movements of the thorax. One side of the chest may be flattened, or enlarged; the intercostal spaces may be protruded; it may remain still, and unaffected by the breathing. The subject may be chicken or cuirass breasted or otherwise malformed.

II. The capacity of the thorax may be tested for comparison at different periods of chronic pulmonary disease, by mensuration; or by expiration into a gas-holder or bell-glass turned down over water; or by counting seconds during inspiration or retention of the breath.

III. Hyppocratic succussion, brisk agitation of the trunk by the

shoulders, is employed for the purpose of detecting fluctuation in the chest, such as occurs in pueumothorax and pueumohydrothorax.

IV. Percussion—performed by striking upon the chest with the finger, or the points of three or four together, smartly. If it be healthy and full of air, a notable reverberation or hollow sound is produced, which differs in degree at different points; if this reverberation does not occur, but a dull or flat sound follows the percussion, we infer the absence of air at the part, either because of the solidification of the lung, its containing an undue amount of blood or some other inelastic fluid, or because of some effusion within the pleura. On the other hand the *resonance* may be inordinately great at certain points; whence we infer emphysema, or the existence of a cavity. Normal resonance, moderate in degree, is always coexistent with the healthy sounds of respiration, and these are always impaired when the resonance is morbid. Percussion is mediate or immediate; each rib may be tapped by the finger-point; but the general examination is best made *mediately*, a “pleximeter” being interposed between the finger and the surface of the chest, especially over the intercostal spaces. A flat piece of ivory is used for this purpose, a bit of leather, or of caoutchouc or a finger of the left hand; which latter I prefer to all others.

V. Auscultation. This is *immediate*, as when we lay the ear to the several regions of the thorax, and listen to the sounds within. It is *mediate* when we employ the *stethoscope*. This instrument is made of numerous varieties in form and substance. I prefer a light wood, apple or cedar, to either paper, ivory or caoutchouc. It should be short, in one piece, and the bore not less than one-third of an inch wide. The stethoscope is often very convenient, sometimes necessary to us; it enables us to localize and circumscribe the sounds heard. The ear should be made familiar with both mediate and immediate auscultation.

The healthy sounds of breathing, the respiratory murmur, are described as *vesicular* over the cells, and *bronchial* along the course of the air tubes. *Puerile respiration* is an intenser vesicular murmur, such as attends the breathing of children.

The morbid sounds, râles or rhonchi, are, the *crepitous*; the *mucous*; the *gurgling* or bubbling; the *cooing* or purring; the *sibilant* or whistling. It is difficult to describe sounds otherwise than by the use of suggestive phrases. The diffused murmur of healthy and tranquil breathing, and the gentle current heard flowing along the smooth bronchi and trachea are easily known after listening to them a few times attentively, and can only be thus known. Thus we obtain the standard for comparison and learn to appreciate new and unnatural sounds. The *crepitous* râle is well imitated by pressing between the

fingers a lock of dry hair so as to make it rustle. The *mucous râle* is often heard just before a loose cough in common catarrh. In general we may affirm the phrases to be well chosen and convey the meaning clearly enough, as when we speak of the *metallic tinkling*, and the *amphoric* breathing and cough heard when air is put in motion in a large cavity, resembling the noise made in blowing into a bottle.

The terms used in reference to *vocal sounds* are, I think, less happily descriptive. In health we notice the *diffused thrill* or vibratory murmur heard over the cells and corresponding with the vesicular breathing; and *bronchophony*, a modified vibration, perceived over the course of the large air tubes.

The morbid vocal sounds are entitled *ægophony* and *pectoriloquy*, which, as I have said, are awkward enough designations; but it is not easy to suggest better. *Ægophony* is to my ear very little like the bleating of a goat, (as the word imports,) indeed I know no sound resembling it, but that which children make by blowing on a piece of paper over a comb, and that not much. *Pectoriloquy* is known at once and easily when heard, but is described in the books vaguely and extravagantly. It is a sort of internal echo of the oral utterance, both being heard.

Young physicians should be cautioned against undue or exclusive reliance on these physical signs. They aid us much in the attainment of a clear diagnosis; the prognosis drawn from them is somewhat less trustworthy.

CROUP—LARYNGITIS—CYNANCHE TRACHEALIS.—Croup is one of the most common maladies of children, in whom it is rarely met with before they have been weaned. Occurs seldom in mature life, though a few individuals remain subject to it. It consists in a well known and peculiar dyspnœa, attended with cough and febrile excitement. The voice is exceedingly husky, and the cough is characteristically harsh, stridulous and ringing. The access is usually towards evening, when the child presents the ordinary appearances of catarrh or common cold, with sneezing, &c. His breathing becomes rapidly more and more difficult, and fever comes on, with flushing of the face and suffused and watery eyes. He sits up in bed, and his struggles for breath are frightful. If not soon relieved, his face is swollen and turgid, and his countenance livid or very pale, while his eyes protrude and his skin is bedewed with sweat. Expectoration of a thick tenacious mucus diminishes his sufferings, and he sinks exhausted to sleep. His respiration is still hurried and croaking, and a mucous rattling is

soon heard over the whole thorax. Portions of a flaky membrane are sometimes coughed up, with great alleviation of his dyspnœa. His paroxysms recur, if art has not arrested his disease, and he sinks, worn out with his violent exertions to continue the process of respiration.

Cause.—Exposure to the vicissitudes of weather, to changes of temperature, to cold and moisture, to particular winds, as with us the east and northeast, give rise to attacks of croup. In some children the predisposition is so strong that any exposure to night air will bring it on. It sometimes arises from the extension of inflammation or ulceration of the throat into the larynx. I have seen it, I think, produced by gastric disorder and irritation.

Pathology.—Croup consists in an inflammation of the lining membrane of the larynx. The thickening of this swollen membrane may close the rima glottidis, or the effusion of thick tenacious mucus endanger suffocation. But the greatest risk lies in the exudation of fibrine or plastic lymph upon the inflamed surface, to which it adheres, clogging up the passage of air through the glottis. A distinction is attempted here into *true* and *false* croup, the presence of the “membranaceous exudation” being regarded by some as specific, characteristic, diagnostic. I look upon it as only one among the results—varying with circumstances—of the inflammation of the affected tissue; depending partly upon its structure and partly upon the composition of the blood in early life.

In the acute laryngitis of adults this exudation is not often met with. In these subjects the most frequent termination is in œdema of the glottis. Dr. G. Buck of New York and Valleix in France have called the attention of the profession to it. It is connected with erysipelatous and other inflammations of the throat, and its supervention clearly marked by the croupy voice, cough and dyspnœa. Dr. B. has relieved it in several instances by incisions on each side of the glottis, made with a knife constructed for the purpose.

Autopsy.—The mucous membrane of the larynx is thickened and high-colored. Adhering to parts of the surface in small flakes or coating it entirely over, we find in many, though not uniformly, the plastic lymph above spoken of. I have seen it in a protracted case extending downwards and forming long tubes within the bronchi. Bronchitis and pneumonia indeed are apt to supervene upon prolonged croup; and the air tubes become clogged with a tenacious mucus and the lung to a considerable extent hepatized or solidified.

Diphtherite or membranous sore-throat is apt to extend downwards into the larynx from the fauces. So also ulceration sometimes progresses. I have a preparation of a larynx which exhibits at different

points of its surface, adherent flakes of lymph, and an extended ulcer.

The *prognosis* is generally favorable. Croup, though always alarming, is, if seen early, very much under medical control. The presence of diphtherite or membranous exudation in the fauces is indicative of great danger. Cases connected with ulceration in the throat too are usually fatal. The extension of the inflammatory action downwards into the bronchi and lungs, aggravate the severity and risk of the attack.

The *treatment*.—We may often succeed in arresting the invasion of croup at its commencement, or during what we may call the catarrhal stage with which it so generally comes on, by administering a full dose of the tinct. opii camph., immersing the little subject in the warm or rather hot bath, and then covering him up warmly in bed. The anodyne and diaphoretic effects of these measures avert the threatening paroxysm, and he sleeps tranquilly, bathed in perspiration, and he awakes relieved.

But if he be not seen early enough; if dyspnœa be urgent, attended with the characteristic cough, an active *emetic* is necessary. The antimonial is almost universally chosen. I prefer to combine it with ipecacuanha, and to administer it while the child is seated in the warm bath.

If much febrile excitement be developed, with full hard pulse, flushed cheek and sparkling eye, with tokens of pain in the larynx, it may be well to premise V. S., or to apply a few leeches to the throat. The emetic should be repeated, if its effect in relieving dyspnœa has been unsatisfactory, and the bowels moved by uniting with it some active cathartic.

Calomel is much relied on, both as purgative and for its specific or alterative influence, and administered in large doses; but I would not confide in it alone, or to the exclusion of other remedies.

Seneka and squill are much and justly extolled as combining obvious and expectorant effects with their emetic property; in protracted cases they may be exhibited repeatedly at intervals, with advantage.

If the attack does not yield readily, and indeed at the very commencement if any spots or flakes of membranaceous exudation be visible on examining the throat, we must resort to the employment of nitrat. argent. in strong solution. Its introduction into the larynx was first successfully attempted by Dr. Horace Green of this city, by passing through the glottis a bit of sponge moistened with a solution of the pure crystals of the strength of about ℥ii in aq. ℥i. The plastic and semi-organized lymph is disorganized by the chemical union with it and

action upon it of the metallic salt, and the inflamed vessels beneath it contract and cease to effuse it. Ricord has well characterized this active remedy, as "the great modifier of diseases of mucous membranes."

Invading croup is very often managed with success by domestic means, which, in country places where the physician is distant, ought to be known as at least retarding the progress of a rapid and dangerous malady.

A plaster of Scotch snuff is sometimes efficient in arresting an attack. It is highly eulogized by Godman. Hot water is applied by some to the throat. Hot poultices with or without mustard are also revulsive and relaxing. The alkalies are much employed. Common ley-water is given internally and used as a hot bath. The vol. liniment, composed of equal parts of spt. corn. cervi with olive or lamp oil is administered with molasses. Indigo was once much used; it operates harshly by vomiting and purging.

With regard to the operation of tracheotomy so much discussed, I would offer this rule. If, in the earlier period of an attack of croup, the patient was in imminent danger of suffocation from sudden closure of the glottis, either by swelling of the membrane or exudation of lymph, while yet the bronchi were permeable and the chest resonant, I would open the windpipe. But it is idle and useless to do this in a case more or less protracted, when the inflammation, engorgement, effusion, and exudation have extended along the trachea and into the thorax; the patient now labors under bronchitis and pneumonia as well as croup, and the operation can be productive of no advantage.

CHRONIC LARYNGITIS.—LARYNGEAL PHTHISIS.—This form of disease has of late attracted much attention, and though it is not absolutely a new malady, as some suppose, is certainly more frequently met with in the last few years than formerly. It is known without difficulty. The sound of the voice is peculiar, or the aphonia is entire, the patient being able to speak only in a hoarse husky whisper, and with a painful and fatiguing effort. The larynx is the seat of uneasy sensations, and suffers when handled or pressed. There is a sibilant weak cough, usually dry and teasing; in some cases there is expectoration of a thin tenacious mucus, sometimes of a little pus. Dysphagia is occasionally the most annoying symptom, from inflammation of the epiglottis. There is dyspnoea and much panting, after muscular exertion. As the case progresses, the ordinary symptoms of phthisis supervene—emaciation, hectic, colliquative sweats, and diarrhoea.

Its *causes* are not clearly defined. It attacks most frequently the scrofulous constitution. Clergymen are observed to be subject to it, especially such as *read* discourses in public.

Autopsy.—The local changes after death are—1. Edema of the glottis. 2. Inflammation of the mucous membrane of the larynx, with redness and swelling. 3. Ulceration of this surface. 4. Ossification, caries and necrosis of the cartilages. It is rarely fatal, however, without the extension of the morbid action downwards along the trachea and bronchi, and the supervention of pulmonary inflammation with its usual results.

Treatment.—In the first instance bloodletting, both general and local, is demanded, with the application of poultices and sinapisms to the throat. Emetics are often serviceable in relieving paroxysms of dyspnœa. Mercurials are strongly recommended by Trousseau and Belloc in France, who urge them to the production of ptyalism, and by M. Hall in England. I have not derived much benefit from them.

Narcotics are always useful. The Dover's powder, if well borne, is to be preferred; the salts of morphine are among the best palliatives. They may be applied to blistered surfaces with benefit. Inhalations of vapor, simple and mingled with ether, camphor, chlorine, &c., have been recommended.

The nitrate of silver has been long in use as a gargle or local application to the fauces and pharynx for the relief of the troublesome dysphagia, which it controlled better than any other remedy; but to Dr. Green belongs the merit of introducing it freely and efficiently within the larynx. He uses for this purpose a bit of sponge strongly attached to a stick of bent whalebone, the insertion of which dipped in a solution of nit. argent. ℥ii to 3i in aq. dist. ℥i, is productive of far less irritation and annoyance than would readily be imagined, and is in many cases followed by highly beneficial results. Its employment should always be fairly tried.

LARYNGISMUS STRIDULUS.—*Spasmodic Croup.*—This is comparatively a rare disease, confounded under the same name, but very different in nature from croup properly so called. The dyspnœa, the only symptom common to the two affections, is in this transient, spontaneously subsiding and recurrent; and accompanied with convulsive or spasmodic action of other muscles than those concerned in respiration. It attacks children almost exclusively—and for the most part while teething. The patient's thumb is bent in upon the palm with the fingers closed over it; the toes and instep bent backward, the breath-

ing for a time suspended, suffocation seeming imminent; the eyes are open and turned upward; the nostrils dilated; the limbs and trunk rigid. After a short struggle the attempt at inspiration becomes partially successful, and a series of sharp, sibilant catches precede the inhalation of a full breath, which is attended with a shrill sound, very different from that of true croup, but equally characteristic, described as "crowing" or chuckling. The paroxysm lasts from a few seconds to two or three minutes; it is sometimes accompanied with general convulsions, and has occasionally proved promptly fatal.

I had under my care an adult above 50 years of age subject to well marked attacks of this character.

Its *cause* is found, we are told, in exposure to alternations of weather during dentition, and in gastric and intestinal irritation.

Autopsy reveals nothing to account for the symptoms.

The *treatment* consists in a careful attention to all obvious or suspected sources of disturbance. The gums should be scarified if swollen; the bowels kept gently moved by proper cathartics, and anodyne diaphoretics administered in moderate doses. The application of the nitrate of silver to the fauces, pharynx and parts adjacent is recommended on the ground that it tends to subdue any morbid irritability of the mucous surface, and the suggestion is reasonable and promising. Change of air is urged by Robertson as the true remedy and prophylactic.

BRONCHITIS—TRACHITIS.—Inflammation of the mucous membrane which invests the air tubes, the trachea and bronchi, and the cells of the lungs. It is divided into acute and chronic.

Acute bronchitis resembles closely, in the first instance, an attack of catarrhal fever, from which it is then only distinguished by a more special prominence of the tokens of local and thoracic irritation and inflammation. Its access is usually with a chill, accompanied by a sense of soreness and stricture in the trachea, and a tickling, dry, and frequent cough; fever soon follows, with harsh hot skin, flushed face, thirst, pain in the back and limbs. In some cases the dyspnoea is urgent, with a distressing tension across the chest, and much pain in coughing. The patient cannot lie down, a crepitous rattle is heard and felt throughout the thorax; but though oppressed with the accumulating mucus, he cannot expectorate. Resonance upon percussion is dull, and the respiratory murmur is impaired very generally over the thorax. If these symptoms be not promptly relieved, he may sink exhausted by his struggles; or the expectoration becomes somewhat freer and fuller, and the disease subsides, or passes into a chronic condition.

Post-mortem examination shows the mucous lining membrane highly injected and thickened, the tubes and air cells being filled with a secretion of varied appearance, sometimes a tenacious ropy mucus, again a thick purulent fluid, mingled occasionally with a serous, ichorous, or sanious effusion. The substance of the lungs partakes of the results of the inflammation, and its tissue is solidified, or as the phrase is, hepatized, and incapable of collapse.

Cause.—Exposures to cold, moisture, and alternations of temperature, are familiarly known to produce bronchitis. It has been excited by inhalation of some of the irritating gases. It is more frequently met with among persons engaged in certain occupations, millers, cotton-ginners, needle-grinders, &c.

The *prognosis* is readily inferred from the degree of dyspnœa, and the apparent ability of the patient to struggle with the impediment to his breathing, and to bring out from the air passages the offending mucus. Free expectoration is therefore favorable, and a hard dry ringing cough the reverse. Very old and infirm persons, and young children, suffer the most serious risks.

Treatment.—Venesection is in some cases an indispensable remedy, and must be promptly carried to as great an extent as can be borne without injury. Emetics are serviceable, both as expectorants and diaphoretics, and are peremptorily demanded in the cases of infants and the very aged. They may be repeated from time to time. Ipecac, squill and seneka are preferable; if these are not sufficiently active, tart. antim. may be added. Cathartics are useful. I select the saline, and combine them with diaphoretics, as the infusion of serpentaria or seneka. Much has been said against the employment of cathartics in thoracic diseases, but these objections are speculative—experience shows them to be, in the early stages, not only safe, but admirably beneficial. In the advanced periods of such cases they are not required, but the bowels should be kept regular and soluble throughout. Nauseating doses of antimony and other diaphoretics are much extolled. I am not fond of the practice, but prefer to use the same remedies in less amount so as to reduce the undue force of the circulation.

When the febrile excitement is in some measure subdued, opium is an invaluable medicine. Dover's powder is a good combination, to ensure its effect as diaphoretic and anodyne.

Of topical applications, after cupping I prefer warm poultices, with which I envelope the throat and cover the chest. Leeches imply too much exposure. To relieve the cough, demulcents are required; mucilaginous mixtures with opium form the basis of the most valuable. *Spermaceti*, formerly so often prescribed, is now too much neglected.

In the asthenic bronchitis of the old and infirm—the peripneumonia notha of writers of the last age—stimulating diaphoretics and stimulants are demanded, and must be given freely. Camphor and ammonia are among the best. Opium must be prescribed with some caution. The strength must be supported with wine-whey, wine, &c. We cannot detract blood from such patients, but dry cupping will often be of service—the mustard poultice should be applied—and here also blisters will be found well adapted.

Chronic bronchitis is usually a consequence of the acute form, but may occur as a primary affection, in which case it is developed slowly and insidiously. There is cough, with slight soreness of the trachea and thorax—a sense of stricture and tightness, increased on drawing a deep breath; the voice is somewhat hoarse. The cough becomes more harassing and severe; the expectoration, at first scanty, increases in amount, and changes from mere mucus to muco-purulent consistence, sometimes colored with a little blood. In a few cases hemoptysis may happen, but this is not frequent. Respiration is hurried, and panting attends any muscular exertion, or the ascent of a stair. The pulse is tense and frequent, and a febrile exacerbation shows itself at first in the evening, going on to a full development of hectic, with night sweats, emaciation and great loss of strength, diarrhœa, &c.

Autopsy.—The bronchial mucous membrane is high colored and thickened, and occasionally eroded with ulcers. The lungs are found hepatized or solidified—the air-cells and tubes filled with muco-purulent matter, mingled with a frothy and bloody serum.

Prognosis.—The unfavorable indications are chiefly drawn from the degree of dyspnœa in the early stages, and at a late period from the atrophy and emaciation which waste the patient. An extreme frequency of pulse is unfavorable—so is the absence of the respiratory murmur in a considerable portion of the lungs, with a loss of the proper degree of resonance on percussion.

Diagnosis.—The distinction between chronic bronchitis and tubercular phthisis is often difficult. In the latter there is less crepitus or râle—less soreness of the trachea and thorax—more tendency generally to hemoptysis, and less expectoration in the early stages. In their latter progress we can draw no line between them, except from their previous history.

Treatment.—The lancet is sometimes required, but must be employed with caution. We derive most advantage from small bleedings repeated. Leeches may be applied to the throat, and cups to the chest, with benefit. Even after we can no longer detract blood, dry cupping the thorax is useful, as revulsive. Emetics are much confided in, and

great stress laid on preference due to particular articles. Ipecac is generally chosen—some combine it with tart. antimon. and others with the sulph. cupri. The utility of emetics is unquestionable; they are expectorant, diaphoretic, and in most instances move the bowels sufficiently. To soothe pulmonary irritation and keep up a constant determination to the skin, we may exhibit a combination of the nitrat. potass. with Dover's powder, allowing a full dose of anodyne nightly at bedtime. A choice of the numerous preparations from opium may be made to suit each particular case. I do not think any other of the narcotics, as the lactucarium, hyoscyamus, &c., entitled to our confidence. The digitalis may do service when the pulse is particularly frequent. Squill is highly prized by some as an expectorant.

The infusions of serpentaria and seneka, afford good bases for the mucilaginous, demulcent and anodyne solutions, administered to relieve the troublesome cough. In threatening cases, I would advise an alternative mercurial course. Calomel in small doses, or the blue pill, may be so given as to produce highly beneficial results, while it should not interfere with the proper employment of such other remedies as may be demanded. Inhalation of various airs and gases has been proposed; but after a fair trial, I have abandoned them. The vapor of ether, in which conium has been macerated, that of burning tar and of resin, iodine and chlorine, have been extolled.

The several balsamics were formerly much in vogue. Myrrh, tolu, and copaiba, are the best of them. "Pine-gum pills" and "lightwood rum," are common domestic prescriptions in the south and southwestern states. Naphtha is advised. Codliver oil is in growing repute.

Tonics may be made of great benefit, by a proper selection of the period for their exhibition, and the cases to which they are adapted. I would use them when the tokens of muscular debility and general relaxation were more prominent than those of local irritation or febrile excitement. The infusion of cinchona with mucilage, is lauded by Broussais and Hastings. The elixir vitriol and tinct. mur. ferri, are also useful. They aid in restraining nocturnal sweats.

The persevering application of counter-irritants to the chest and arms, will be of great advantage. I prefer to blister successively one and another portion of the surface. The tartar emetic is a favorite irritant with many physicians, while others still prefer setons and caustic issues.

The convalescent must take as much exercise in the open air as he can undergo, without fatigue. A long journey or a sea voyage should be advised, and an equable climate chosen. Flannel should be worn next to the skin, and all undue exposure avoided.

PLEURITIS.—Inflammation of the serous investing membrane of the lungs. *Pleurisy* is a common and well known disease, usually met with in winter and spring, and frequent in occurrence in proportion to the abruptness of the changes of the weather in these unsettled seasons. It comes on with sharp pain in the thorax, at the side and most often perhaps on the right side; the pain is fixed and circumscribed, constant but increased by a full inspiration; the breathing is short and restrained, and the patient assumes a bent posture, leaning to the affected side. Fever soon supervenes, with quick, frequent, hard and full pulse; the skin is hot and dry, and a cough comes on aggravating intolerably the keen lancinating pain.

If not soon relieved, the dyspnœa increases and the symptoms of pulmonic inflammation are added and become prominent; or the case is protracted into a chronic stage in which the results of the inflammation of the pleura vary somewhat. Effusion takes place within the cavity of this membrane, which exhibits itself by continuance of dyspnœa after the earlier acute symptoms have subsided; it is aggravated into orthopnœa more annoying when the patient sleeps, and during the night. The affected side becomes fuller to the eye and does not follow the ordinary movements of respiration; there is not only a total absence of resonance on percussion and respiratory murmur, but the heart itself is sometimes displaced by the accumulated fluid, if on the left side, and pressed over to the sternum and upwards; and all the phenomena detailed in the description of hydrothorax supervene.

The *causes* of pleurisy are already pointed out; exposure to cold and moisture and sudden changes of temperature. External violence too may give rise to it; puncture by the spiculæ of a fractured rib has occasioned it, and a fatal case is on record where the pleura was wounded by a needle employed in passing a ligature round the sub-clavian artery.

The *diagnosis* of pleurisy is not difficult. The pain in the side is attended at first, if the case be uncomplicated, with little impairment of resonance on percussion; the respiratory murmur is only deficient because the patient does not inspire freely. After a short time, the "frottement" sound is heard, produced by the rubbing together of the opposite surfaces of the pleura, roughened somewhat by the exudation of plastic lymph or fibrinous shreds. The case still advancing, effusion of serum gives a brief ægophony; this is followed by great dullness of resonance, varying somewhat with the posture of the patient, and corresponding loss of respiratory murmur, owing to the still increasing amount of fluid only, if the case continue a simple one. But in fact it is apt to complicate itself into pleuropneumonia, the

superficial inflammation extending to the tissues beneath, where we shall have of necessity the symptoms of pneumonia vera added to those above enumerated.

Prognosis.—In general, pleurisy may be regarded as a manageable disease, attended with little danger, if the patient is seen early. In the first stage the danger or risk may be inferred from the extent of the inflamed surface, the violence of access, the severity of the constitutional excitement supervening, and the apparent ability of the patient to bear the requisite remedial measures. As the case progresses, the increase of dyspnœa into orthopnœa is unfavorable. By exploration of the thorax we derive minute information of the condition of the subject. All tokens of effusion are of course to be dreaded.

Autopsy.—The most common result of inflammation of the pleura, often indeed observed in bodies dead of other forms of disease, is the adhesion of the opposite surfaces of the pleural sac or their connection by layers or strips of organized membrane. Effusion of pus, empyema, is occasionally met with; that of serum is far more frequent.

Treatment.—The lancet used promptly and boldly at the outset of the disease will often put an end to it at once. It is to be resorted to at all stages while the breathing is sharply painful and difficult, unless the pulse is feeble, and the strength of the patient obviously failing.

Topical depletion by cups, which should be applied on and near the seat of pain, is next proper; after which large warm poultices should be assiduously laid about the side. A full and free dose of an anodyne diaphoretic will now complete the relief of the patient, who sleeps soundly, breathes quietly, and wakes restored to comfort. Dover's powder is perhaps preferable here to any other formula.

If the attack be protracted, cathartics will be found useful, and the drastic and somewhat irritating should be chosen as most revulsive. No prejudices have less foundation than those which oppose the employment of purgatives in thoracic inflammation. They are adapted however, only to the early stages of febrile character in young and robust subjects. It is advantageous to combine them with an antimonial or other diaphoretic, as in the common formula of nitrat. potass., pulv. jalap et tart. antimon. I have seen little or no benefit from the exhibition of emetics so highly recommended by some practitioners. Among the vegetable diaphoretics, the infusions of seneka, and serpentaria, and of the asclepias decumbens (vulgarly called "pleurisy root") are deservedly extolled. The combination of ipecac with opium in the pulv. doveri is an invaluable remedy; a full dose of it, 12 to 20 grains, should be given nightly, and it may be usefully added at regular intervals to

such other medicines as are prescribed during the day. Demulcent drinks, rendered more efficient by the addition of tinct. op. camph., tinct. tolut. and nitrous or chloric ether, may be taken to palliate cough.

Epispastics should be applied over the affected part of the chest, if any pain should continue after the febrile excitement has been subdued and the pulse has lost somewhat of its force and tension. This abatement of inflammatory irritation constitutes the "blistering point" of English writers. Empyema or hydropleura may demand the operation of paracentesis, to relieve the patient of the otherwise fatal accumulation of serum or pus.

Bilious pleurisy.—In all low miasmatic regions, the thoracic affections of spring and early winter are apt to be combined with and modified by notable symptoms of gastric and hepatic disorder. This complication, known familiarly by the title just given, I am disposed to attribute to the persistent effect of malaria upon constitutions imbued with that poison; an English writer of some authority speaks of it as owing to an undefined atmospheric and epidemic influence still present and acting.

In this form of the disease, which is by no means rare in the southern country, less vigorous depletion by the lancet is required or admitted of, than in simple pleurisy. Emetics are more beneficial; cathartics indispensable, and mercurials more applicable. The sulph. quinine is used with advantage, after the very first stage has passed. Vesicatories are well adapted and may be applied early.

Convalescence requires great care and prudence. The clothing should be warm, and all exposure avoided.

PNEUMONIA—PULMONITIS.—*Inflammation of the lung proper*—its parenchymatous and cellular tissue. This is among the most frequent of the diseases of our continent—the most common outlet perhaps of life. It is oftenest met with in winter and spring, but occurs in all seasons of the year. It attacks all ages—the infancy, maturity and decline of life. It seems to be the direct effect of exposure to cold and moisture.

Symptoms.—Pneumonia comes on often with a chill, which soon ushers in the hot stage of fever, accompanied with dyspnœa, and uneasiness and oppression of some part of the chest, a pain rather obtuse than keen, increased by inspiration. The face is flushed, the pulse full and hard. Cough soon attends, at first dry, hacking and distressing; a little mucus is next brought up, tinged with streaks of blood, then colored brown like iron-rust, then of a deeper hue, resembling to.

bacco or even prune juice. As the case progresses this is mingled with or substituted by a creamy or frothy matter, mucopurulent, or seropurulent; and in the worst instances grows thin, serosanguinolent, dark, and highly offensive. There is orthopnœa—panting; the pulse becomes small and weak and extremely frequent; the skin cold and clammy; the countenance livid and shrunken; the lips and tongue bluish or purple; there is low muttering delirium; cough and expectoration cease, and death soon follows.

Physical signs.—From the first there is impairment of respiratory murmur and loss of the resonance at the part affected. The lower lobe of the right lung is most frequently the seat of inflammation—next the lower lobe of the left. The upper lobes are not often attacked—the middle more commonly. The crepitous râle is heard at the spot in the early stage, but soon disappears, replaced by loud mucous rattle when the expectoration becomes free. When the lung becomes impervious and solidified, there is no respiratory murmur, little or no râle; bronchophony is heard, and much vibration felt when the patient speaks.

Diagnosis.—We distinguish it from pleurisy by the early dullness and loss of murmur—by the absence of frottement sound and ægophony—and by the fact that as the disease advances the dullness is never or very rarely so complete in the worst cases as it is in effusion; and that it does not shift its place with the changing posture of the patient: from bronchitis, with which it soon complicates itself, by the rust colored and prune juice sputa and the signs of hepatization. Exploration of the chest should be carefully attended to in young children, in whom inflammation of the lung is as obscure as frequent.

Prognosis.—In young and previously healthy subjects—if the pneumonia be single, limited to small space, at the base of the lung—if expectoration be early and free—*favorable*. In advanced age and infancy on the other hand—if a large portion of the lung be inflamed—still more if the pneumonia be double or of both sides—if dyspnœa be specially great—if the expectoration be difficult, very thin, serous, frothy, fetid, or stop suddenly—it is *unfavorable*. The return of crepitous râle and of resonance and murmur when they have been lost, betoken improvement. So does a florid change in the lip and cheek.

Autopsy.—The changes shown in the diseased lung vary relatively to time and other circumstances. Earliest we find sanguineous congestion, and infiltration of blood into the pulmonary tissue—"splenization;" then hepatization, the organ losing its light cellular texture, becoming solidified and granulated and of a livid brownish color; it

shows, still later, purulent infiltration and collections of pus ; it is sometimes found gangrenous and disintegrated.

Treatment.—Venesection is a general remedy, whose importance is not sufficiently admitted by Louis, and understated even by Prof. Bartlett in his elegant essay on “the Certainty of Medicine.” In the early stages of pneumonia it is rarely, very rarely, justifiable to omit it. The detraction of blood, always cupped and buffy and fibrinous, should be free and efficient, carried to the relief of the breathing or the reduction of the pulse ; when the relief given by it is not permanent, should be promptly repeated, unless in some manner definitely contra-indicated, as by general debility or failure of circulation. Topical depletion by cups or leeches may precede the application of large warm poultices about the chest or to the side. A saline cathartic combined with some diaphoretic, as the infus. R. senek. or serpentariæ with sal epsom, should next be administered ; or if it be night the patient may be put to bed and a full dose of pulv. doveri, grs. 15, prescribed with merc. dulc. grs. 10, which will prove anodyne, diaphoretic, and purgative successively. Great confidence is placed by many in the contra-stimulant exhibition of tartarized antimony carried as far as tolerance of it can be established ; this is aided by combining with it small doses of tinct. opii, a very efficient formula. Or we may substitute with excellent effect a strong infusion of rad. senek. with large proportion of (3j to 3vj) pulv. ipecacuanha. Others prefer to continue the mercurial in small doses with nitrat. potass. and pulv. doveri. All these determine to the surface and bowels, and act on the blood by diminishing probably its plasticity and hyper-fibrination. A few press the mercurial to the point of light ptyalism, but this is rarely necessary.

Contra-irritation by blistering is of great service at the proper period, when the first stage of active excitement has passed by.

If the strength of the patient give way, he must be assiduously sustained by stimulants and tonics. Carb. ammoniæ, camphor and cinchona in infusion and tincture are the best of these ; while wine whey, wine, and milk punch are allowed in quantities carefully adapted to the circumstances of the case.

The cough must be palliated by mucilages and demulcent drinks. Of these there is a great variety ; all of them being rendered more efficient by the addition of the tinct. opii camph. and other anodyne formula, with tinct. tolutan., tinct. sanguinaricæ, benzoin, &c.

CHRONIC PNEUMONIA—APOSTEMATOUS PHTHISIS.—Dr. Duncan divided consumption into three kinds. 1. Catarrhal consumption, iden-

tical with chronic bronchitis already treated of. 2. Apostematous consumption, our present subject; and 3. Tubercular consumption, which shall be considered next in order.

Chronic pneumonia, with abscess, is not so rare a disease as it is represented to be by Laennec and some others. It is foremost among the sequelæ of pleuro-pneumonia, and may perhaps follow catarrhal fever and bronchitis. I have seen it twice occur from gun-shot wound of the lung; in one case it was fatal, the other recovered after long protracted illness. Wounds of the lungs, however, often heal kindly. It may supervene upon asthma, and results from tenacious gastric and hepatic derangements, constituting the dyspeptic phthisis of W. Philip. Hemoptysis is said to produce it, but is in general only a coincident effect from the same cause. Some of the exanthemata, as measles and small pox, render the patient exceedingly liable to it. It has been brought on by the suppression of itch and other cutaneous eruptions.

An obvious predisposition is supposed to be found in a flat or narrow or otherwise ill-constructed thorax. Sedentary occupations, which exclude from fresh air and free exercise, predispose to it; so do all such trades as subject the respiratory organs to mechanical irritation, as with millers, needle-grinders, cotton-ginners, and coalmen.

The formation of pulmonary abscess is attended by a fixed heavy pain in the thorax, pulsatory, or at intervals sharp and lancinating. There is dyspnœa which does not admit of muscular exertion, and is increased also on lying down, especially if the patient attempts to rest on the sound side; but this rule is not without exceptions. The cough is severe, but at first without expectoration. The abscess sometimes empties itself through small openings and gradually, but in general bursts and discharges its contents freely and suddenly, pus being coughed up in quantities, varying from ounces to pounds. There is great relief at the time, and the expectoration continues abundant for a while after, consisting of pus mixed with mucus and sanious serum. Recovery sometimes happens at once from this state, but more commonly hectic supervenes, in place of the inflammatory type of fever which had attended the formation of the abscess; there is great emaciation and muscular debility, the voice is weak and hoarse, and colliquative sweats and diarrhœa terminate the tedious train of suffering. The pulse is at first tense and quick, and in some cases full; after the abscess is matured, it becomes very frequent and more contracted. The digestive system in many instances remains unimpaired until the last stages, diarrhœa then coming on, with redness and ulceration of the lips, cheeks, gums and tongue.

The *prognosis* is unfavorable, holding perhaps a middle rank be-

tween bronchitis and tubercular phthisis. When a case occurs in a person of well-formed chest, previously healthy, and from a transient and notable cause, there is good hope of restoration.

The worst symptoms are great emaciation and debility. By careful exploration of the chest, we can ascertain the extent of the pulmonary disorganization, to which the danger is pretty regularly proportioned.

The duration of apostematous consumption is very various, from a few weeks to many months.

Autopsy.—Laennec and Andral declare it to be quite uncommon to find pus in a circumscribed cavity in the lung in this form of pulmonary disease, the frequent mention of abscesses by other pathologists being attributed to their having mistaken tubercular vomicae (to be hereafter spoken of) for abscesses. They describe purulent infiltration as supervening upon hepatization, the color being changed from red to gray and the matter being diffused through the lungs, the texture of which is broken down and softened. There is, however, good proof that encysted or circumscribed abscess does occur. A large one is described by Laennec himself. Nor can we otherwise account for the fact of large and sudden evacuation of pus, after pulmonic inflammation, cough, &c., have existed for some time. Such cavities are lined by a false membrane, or layer of organized fibrine.

Diagnosis.—Apostematous phthisis is attended with more pain and dyspnoea than chronic bronchitis or tubercular phthisis, and with less expectoration than the former, for some time from the commencement. If a considerable amount of purulent matter be suddenly discharged, we infer that it must have collected in an abscess. The physical signs of this state of the lungs are, the lessening of the capacity of the thorax, the dull sound upon percussion over the pained part, and the loss of respiratory murmur there, and after the abscess is empty, pectoriloquy.

Treatment.—While pain urges, and until the failure of pulse and strength absolutely prohibit, venesection to small amount should be repeated occasionally. Cupping the affected side of the chest, at first with, and then without the scarificator, will be of much service. Large warm poultices are also useful. Blisters applied in long succession are among our best remedies. When in any way unsuited, the ung. ex tart. antimon. may be substituted.

Emetics have been much employed by different physicians, and with very different views. Some suppose them specially adapted to procure resolution and absorption of any deposit; others use them perseveringly as the most efficient revulsive. Some prefer ipecac alone; others prescribe it in combination with the sulphates of zinc and of copper.

The antimonials have been highly eulogized, by some as the best emetics, by others, for the property of reducing the pulse and exciting protracted nausea; while Laennec and many continental physicians look upon the tart. antimon. as gifted with a specific remedial influence, and give it in large and increasing doses as a contra-stimulant. These consider it as most beneficial when alone and uncombined. In this country, it is often exhibited in combination with nitrat. potass., to reduce vascular excitement and determine to the surface, or with the infusion of seneka and serpentaria. With similar views and as exerting a tranquilizing influence of great advantage, I employ the Dover's powder, both before and after purulent expectoration has appeared. Mercury, in small doses, is occasionally administered with much benefit; but it is not adapted to all cases, nor should it be carried to the extent of an irritating ptyalism. In the first stages, it is useful in moving the bowels gently, and subduing any gastric or hepatic disorder that may be present.

Digitalis has been the subject of extravagant eulogy; but I do not consider its remedial influence as well marked or striking. It is best adapted to cases where great frequency of pulse exists, and the tokens of inflammatory excitement are not particularly high. The prussic acid has been in like manner extolled, and some authentic reports made in its favor; but it has not retained the confidence of the profession. After the abscess has been ruptured, as will be known by the sputa and pectoriloquy, if the expectoration be free and without pain, we may derive advantage from the infusion of cinchona, with which mucilages and anodynes may be united. The mineral acids are also serviceable as tonics here. On the other hand, if there still remain tension across the chest, with a harsh cough, it may be necessary to take blood from the arm, and apply the cups and poultices or vesicatories, and even to administer an emetic, which will often give great relief. If diarrhœa should come on, it must be restrained by the acet. plumbi, kino, or such other astringent as is best adapted; while we indulge the patient with free doses of opium, which will aid in checking the alvine disturbance, while it subdues, in an unequalled degree, the pulmonary irritation and cough. Among the numerous formulæ prepared by modern chemists from its constituent principles, some one will surely be found without objection. The other anodynes may be used—*thridace*, *lupuline*, *hyoscyamus*, *conium*—but I have little confidence in any of them. With a view to promote the healing of the abscess or ulcer, inhalations of gases and even of finely pulverized bark, and other remedies, have been advised. Iodine has been tried, chlorine, the vapor of tar, of resin—several of the gases less stimulating than common air,

as mixtures of hydrogen, nitrogen, carbonic oxide, &c. The balsamics are also in ancient repute for the same purposes. If any good be done by such prescriptions, it must be in an indirect way. Our best hope is in keeping the constitution at its highest point of tone and vigor. As soon as the patient can bear it, exercise in the open air must be advised. He should take a journey or sea voyage. Flannel should be worn next to the skin, and a diet chosen for him, nourishing but unstimulating.

TUBERCULAR PHTHISIS.—This insidious and fatal form of pulmonary inflammation derives its name, as well as its other characteristic peculiarities, from the presence of *tubercles* in the lungs. It is therefore proper here to enter into the consideration of their nature and origin.

Tubercle is variously described by authors. In the condition most commonly met with, it is a pale yellow or yellowish gray, opaque, inorganic substance, somewhat resembling cheese in appearance, soft and friable. Carswell regards the mucous and serous surfaces and the blood "as the exclusive seats of tuberculous matter"—it is principally found deposited in the first of these positions. It is composed of albumen, gelatine and fibrine, with a very small proportion of muriate of soda, and phosphate and carbonate of lime. The majority of pathologists suppose it to be deposited in this solid form—Cruvelhier asserts it to be at first fluid. Laennec contends that a tubercle grows by intussusception, but the opinion of Andral prevails, that it increases by the successive deposite of molecules around the primary granule. When deposited, "each granule," says Morton, "retains its appropriate tunic of cellular tissue." The deposition may go on until the mass shall occupy an entire lobe of the lung. The softening of a tubercle is not well explained. Laennec and others contend that it always commences in the centre—a view hardly consistent with the acknowledged inorganic state of the mass. It seems more probable that it results from inflammation of the interstitial cellular tunic above spoken of, upon whose surfaces pus is effused, mingles with and macerates the tuberculous matter. Tubercles are not constant in their form. They are often rounded and contained in a sort of circumscribed cavity, in a cyst, the inner surface of which secretes purulent fluid.

But tubercle, it is well known, is not confined to the lung; it is met with in many and various locations, and is so often connected with the other phenomena of strumous disorder, that it is by many supposed to be exclusively the product of scrofulous constitutions. Whether this be absolutely true or not, it is certain that scrofula constitutes an obvious

and strong predisposition to the formation of tubercle, and that tubercular phthisis is hereditary and of lamentably common occurrence in strumous families.

It is a question of great importance, whether tubercle is ever the result of common inflammation, in a constitution previously sound. The opinion that it can be thus developed, is held by Andral and others; but I am inclined to think, that inflammation is only to be regarded as the exciting cause of the series of symptoms which constitute phthisis. The deposition of tubercle I believe to be independent of, and often unattended by, inflammation in any form or degree. When this deposition has taken place, it may go on, and by its bulk excite inflammation round it, and thus develope phthisis; or it may remain an inert body and indolent, until inflammation of the surrounding parts shall be excited by some extraneous cause, when its interstitial cellular investment shall secrete pus, and by this process soften the tubercular mass—pleuritis, pneumonia, and bronchitis being thus converted into tubercular phthisis.

Phthisis, by a large proportion of writers of a past age, and in many countries now, was and is considered as communicable or contagious; and within my own observation so many circumstances have occurred which seem to confirm the doctrine, that with Cullen, "I dare not assert that consumption is not contagious."

Symptoms.—The access of this fatal malady is often extremely gradual and obscure. The patient is scarcely disposed to complain, though harassed by a dry hacking cough, with occasional pain in the chest, heavy and deep seated. There is languor and debility, and after a time notable emaciation, though the appetite is unimpaired and the digestion good. Hemoptysis will now and then follow a fit of coughing, though the hemorrhage is not apt to be very large. As the case progresses, the respiration becomes hurried, with frequent pulse; on ascending a stair, the patient pants and his countenance is pale or livid; he cannot lie down at night without uneasiness, or is confined to one side or to his back; there is oppression or tension of the thorax, with a disposition to stoop or lean forward; hectic ensues, with its long train of derangement and suffering, colliquative sweats and diarrhœa, the tongue and mouth being covered with aphthous ulcers, though the inclination for sapid food may hold out to the last; and the patient ultimately sinks, after an indefinite protraction of his tedious disease, into absolute atrophy or marasmus.

Prognosis very unfavorable—recovery scarcely to be hoped for. It can hardly be possible that a single tubercle, or even one mass of tubercles, exists alone—if so, there might be a softening and expectoration of

them, and the patient would be in a state described under the head of apostematous phthisis, after the rupture of the abscess. It might heal. But the formation of tubercle in the lung is generally a mere portion of the universal diathesis or constitutional derangement, and similar deposition goes on or is repeated from time to time. It is consoling, however, to know that in many instances, an indefinite protraction of life is attainable by judicious and proper management.

Diagnosis.—The unfavorable prognosis which a melancholy experience enforces from us, requires from us great care in distinguishing this, from more hopeful forms of disease. The pathognomonic signs are not very clear. The slowly progressive gradual increase of the symptoms will attract our notice. We will inquire if the patient be of strumous family, or have exhibited in early life any serofulous development; or if his parents or ancestry have died of consumption. His expectoration will not be abundant, or mixed with much mucus from the first, as in bronchitis; nor suddenly augmented, with pus, as in the bursting of a vomica. The pain will not be at any time as acute, in any part, as it is from the commencement of pleuro-pneumonia, although it will in its progress be actually complicated with this affection; nor will there ever be so general a soreness of the respiratory tubes, as in the former.

There is in these cases too, a tenacious cheerfulness and resolution, and hope of recovery, proverbially noticeable. It lasts until the impairment of the digestive function, which is often delayed to the very latest moment of life. The physical signs are rather negative than positive in the first stages; the absence of respiratory murmur may be remarked in more than one spot of the thorax, and after a time pectoriloquy will be distinctly observable.

We should be aware that tubercular phthisis may go on to a fatal termination without pain in the thorax, or dyspnœa in notable degree, or cough. I once saw a patient die, the nature of whose case (from the absence of these symptoms) was not detected, the right lobe of whose lung was found, after death, a mere mass of tuberculous matter. I attended, in the last weeks of his life, an eminent literary gentleman whose physicians had treated him for chronic hepatitis and diarrhœa. He was surprised at learning that his lungs were at all diseased, as he had labored under no difficulty of respiration, and almost no cough, but desired that his body should be examined. In complying with his request I found his liver little, if at all affected, and his lungs full of tubercles.

The relations of phthisis with other diseases should be noticed here. Its connection with other and more obvious forms of serofula has been mentioned. Children who have been specially subject to epistaxis, are

apt to fall into phthisis after puberty. Hemoptysis is also a coincident effect of the same malformation and defect of organization which predisposes to phthisis.

Fistula in ano is very often observed in subjects predisposed to phthisis, and even after phthisis has commenced ; in this case it may suspend or protract the progress of the latter indefinitely. There is said by authors to be a similar connection or alternation between *mania* and *phthisis*, but I have had no occasion to remark any thing of the kind. *Intermittent fever* has also been supposed to exert a suspensive or protracting power over phthisis. I doubt this—nay, I have seen our ordinary malaria fevers repeatedly develop phthisis, and excite it in subjects predisposed. It is well known that the condition of *pregnancy* will almost invariably suspend, even in its advanced stages, the further progress of phthisis, and that the feeblest patient will almost certainly live until she is delivered. Lactation does not, however, continue the privilege, and such a patient will sink sooner if permitted to nurse her child.

Treatment.—The elements of the disease are, 1. A vice of nutrition, whence the morbid deposit: 2. The local pulmonic inflammation occasioned thereby : and 3. The constitutional or sympathetic results, hectic atrophy, &c.

For the first, a remedy has been hitherto sought in vain. We scarcely know its existence until the second has been added in greater or less degree, which then we set ourselves earnestly to palliate or arrest. The means for effecting this are such as have been already dwelt on, V. S., antimonials, digitalis, opiates, &c.

These antiphlogistic and depletory measures must however be cautiously carried out, on account of the chronic and persistent nature of the diseased condition, as well as the imperfect capacity of the constitution to bear them.

Meanwhile we must endeavor to correct the morbid element upon which depends the whole train of symptoms. To improve the nutritive function, naphtha and codliver oil have of late been much employed ; and some high authorities offer strong testimony in their favor. Prussic acid is supposed to do service in a similar way. The alcoholic lotion of Marshall Hall, when efficacious, must act in the same manner.

To remove the mechanical irritation of the inorganic deposit of the pulmonary tissue is a difficult matter. Emetics have been alleged to promote its absorption directly.

From the analogy of its usefulness in other forms of scrofula with tuberculous deposit, iodine is the subject still of hopeful experi-

ment. I have been pleased with the apparent benefit derived in some well marked cases from the use of the deutiodide of mercury and potassium.

In no disease can the general subject of *prophylaxis* be of greater consequence. Children of scrofulous or consumptive parents, or who have suffered much from epistaxis, or who exhibit notable malformation of the thorax, should select for their future occupation through life, such employments or situations as shall admit of, or require, the full development of muscular power, by active exercise in the fresh air. Phthisis can neither be prevented nor cured, nor even long protracted, otherwise than by exercise constantly and habitually taken under the open sky.

ASTHMA.—Defined to be a species of dyspnœa, paroxysmal, spontaneously remitting and recurrent. Divided by writers generally into two forms—the dry, *nervous* or spasmodic, and humid or *humoral* asthma—the distinction referring to the presence or absence of mucous râle and expectoration.

A paroxysm of asthma usually comes on at night—is often preceded by flatulence, a loose griping stool, heartburn and other symptoms of indigestion. The patient awakes from his first sleep with a sense of uneasiness and constriction of the chest, difficulty of breathing and cough. He is forced to sit up, nor can he bear the weight or pressure of any clothing or fastenings about his neck or body. Respiration is effected with wheezing and panting, and great muscular effort. At first the cough is dry, but after a time a frothy mucus is brought up, occasionally tinged with blood—this is attended with relief. In the worst cases there is neither cough nor expectoration. These symptoms, depending on the affection of the respiratory organs, are uniform; those which arise from the sympathetic disturbance of the general functions, vary with the condition of the patient. In the robust and plethoric, and in recent cases, the pulse is full, hard and frequent—the countenance flushed and turgid—the eyes suffused and prominent, with much tension and pain of the chest. On the other hand, when the disease has become habitual, and the patient is feeble, the face is pale or livid, the surface cold and moist, the pulse small and weak, and the tokens of gastric derangement more marked and prominent. The duration of a paroxysm is uncertain; it remits usually at the approach of morning, the dyspnœa continuing, however, in some degree, through the day, with more or less cough, and the exacerbation again

recurring at night ; these changes go on for a few days before the entire subsidence of the attack ; it has endured for weeks.

The general *prognosis* is favorable as regards the danger of a fatal issue—few die ; it is unfavorable as regards the hope of a cure—few recover. Besides the impairment of the constitution universally, which must follow the repetition of paroxysms of asthma, it sometimes develops hydrothorax, chronic bronchitis, and phthisis pulmonalis.

Autopsy.—Asthma is found accidentally connected with a great many lesions of the viscera of the thorax, but is clearly proved to be essentially independent of any of them. The most frequent organic change in the asthmatic, is emphysema of the lung ; the cells being found distended, several of them dilated into one cavity, and incapable of collapse. Even this, however, is far from being constant ; and numerous cases are recorded, in which there was no notable deviation from the natural state of the lung.

The *pathology* of asthma is doubtful and obscure. The difficulty of breathing is twofold, and urges both during expiration and inspiration. It is hence plausibly suggested, either that the muscular fibres of the bronchi are everywhere rigid, refusing both to contract and to dilate ; or, that in some portions of the air tubes, these fibres are spasmodically contracted, resisting both the entrance and exit of air. It is not unfrequently combined with inflammation and organic lesion, as in bronchitis and emphysema ; but the complication is merely a coincidence. It may exist fatally without a trace of either.

Causes.—A predisposition is obviously derived from vicious conformation of the thorax, or of some of the organs contained in it, either accidental or hereditary. A first attack generates a strong tendency to recurrence. Paroxysms are excited by exposures to change of temperature, or to cold and moisture, to the bad air of crowded apartments, to certain of the gases, and to some odors. They come on after full meals, late suppers especially, violent muscular exertion, loud singing and speaking, and supervene on repelled eruptions. It seldom appears early in life ; I have, however, seen a well marked case in childhood.

Treatment.—During the paroxysm, it may be necessary to employ the lancet, if the pulse be full and hard, and the patient robust. It is especially called for in the early stages of cases which present marks of thoracic engorgement or inflammation. Cupping the chest is also a useful measure, under these circumstances. But we must be cautious not to detract blood in the opposite conditions, when the patient is feeble and the asthma habitual. Emetics are highly beneficial in many cases ; given at the beginning of the attack, they often cut it short,

and if this fail, may be repeated after a time; they are among our best expectorants, and are indispensably necessary when the patient has indulged in a full meal just before going to bed. It is well, too, to have the bowels opened by a purgative enema. Many of the narcotics enjoy great repute for the relief of asthmatic dyspnoea. Tobacco, stramonium, lobelia inflata, the spider's web, coffee and opium, have their eulogists. I prefer the last mentioned, and in combination with camphor, ether, or ipecac have seen it of immediate and striking advantage. Inhalations of various gases have been tried, but with no very obvious good results. I am inclined to hope for benefit from the inhalation of ether, chloroform and other anesthetics. They are relaxant and subdue irritation. Galvanism deserves general employment and confidence. My experiments with it have been successful and gratifying.

In the *prophylactic* management of the asthmatic, we must depend more upon regimen than medicine. If any disorder of the digestive system, or any chronic pulmonary disease exist, we must endeavor to remove it. Casey describes the influence of iodide of potassium as highly beneficial in asthma, having exhibited it successfully in a large number of cases. Its use as a preventive here is altogether empirical, however. We must aim to restore the patient to full and perfect vigor of constitution, by air and exercise. We must attend to the place of his abode, for there are particular localities in which asthmatics suffer much, though in regard to the situation best fitted for each, no general rule can be laid down. The matter must, therefore, be decided by experience.

PERTUSSIS—TUSSIS CONVULSIVUS—*Bex convulsiva*, Kink-cough, Chin-cough, Hooping cough.—These are all significant appellations for the well known disease now to be spoken of. It is one of the specific contagions, often becomes epidemic, does not attack usually more than once the same individual, although this rule is liable to exceptions. Hence it is most frequently met with in young children. It invades for the most part as a common cold or mild catarrhal fever. After a certain duration the paroxysms of coughing become more and more violent, and protracted and convulsive. Rapid and repeated expirations are made with vehemence, and then a sonorous inspiration, whence the common name, hooping cough. These paroxysms terminate with large expectoration or vomiting. The intervals between them are shorter or longer, and more or less perfect and free from uneasiness, in proportion to the violence of the attack. There is gener-

ally a considerable secretion of mucus in the air passages, with a loud râle. Pulmonary inflammation sometimes arises, with fever and great dyspnœa. In other cases there is notable and prominent disorder of the digestive system, with diarrhœa, &c. Not unfrequently, too, there is much determination to the head, with convulsions.

The *causes* which occasion or render more violent a paroxysm, are a full or indigestible meal, any forcible muscular exertion, mental emotion, exposure to cold and moisture, &c. The average duration of hooping cough may be calculated at from six to eight weeks; it may be prolonged indefinitely by a renewal of catarrhal affections, with which it readily associates itself. It is said also to assume sometimes a periodical character, which gives it a tedious protraction.

Prognosis generally favorable. The greatest proportion of deaths happens among very young infants, who may die suffocated by engorgement of the air cells and tubes with mucus that they are unable to expectorate, and children who are teething—a complication which often gives rise to convulsions. The supervention of any of the more ordinary forms of pulmonic inflammation, is attended with danger; the diarrhœa, which is sometimes present, may become unmanageable and fatal.

Autopsy.—The traces found in post-mortem examinations of this disease, are not regular or uniform. It sometimes happens that no lesions or morbid changes can be pointed out. Most generally, however, the bronchial mucous membrane is irregularly reddened and injected in patches; while, at the same time, there are marks of determination to the head and engorgement of the brain.

The *pathology* of hooping cough is not clearly made out. Many deny the existence of inflammation as an essential condition; the majority, however, believe it to be an inflammatory affection of the bronchial membrane. Some very respectable authorities refer all the phenomena to cerebral and nervous disorder. Others still regard both cerebral and pulmonary inflammation as necessarily present, and in some manner connected. Desruelles calls it a “broncho-cephalite.” It cannot be a simple bronchitis, as we infer from the spasmodic or convulsive character of the cough which attends, and the peculiar manner of coughing. Watt considers it a pulmonary exanthem.

Treatment.—It is made a question whether we have the power to cure an attack of this singular malady; and while some, denying this power, use their efforts merely to palliate the symptoms, others are engaged in the search after specific remedies, of which a large number is already accumulated. I would advise, as the great majority of cases are in the first instance attended with pulmonary disorder and inflammation, that they be treated as catarrhal fever or acute bronchitis,

by general and local bloodletting, if severe ; by emetics, purgatives and expectorants. The sulph. zinc has been supposed to deserve a special preference among emetics, and of the expectorants, squill and ipecac. The narcotics and antispasmodics are much used when the first stage has passed. I am much in the habit of combining with the camphorated tinct. opii, the tinct. mosch. fact., which I add to a solution of the carb. potassæ. The warm bath should be employed at night, and counter-irritation by mustard poultices frequently resorted to. Assa-fœtida is much extolled among the antispasmodics. Prussic acid is supposed by some to be almost antidotal ; and in the same way the acet. plumbi, nit. argenti and cochineal, are prescribed, without any definite idea of the *modus operandi*. Of the tonics, cinchona and arsenic are justly preferred, and are well adapted to the relief of protracted attacks.

DISEASES OF THE SENSORIAL SYSTEM.

The organs of this important system are the brain, the spinal cord, and the nerves—the diseases of which must be considered in succession.

Their functions are varied and numerous, and essential both to organic and animal life. Intellection, including sensation, volition and all forms of mental action and passion ; motivity, in both the voluntary and involuntary muscular fibres ; secretion, nutrition, circulation and indeed all the specific actions of all the viscera and tissues, are absolutely dependent upon, or inevitably modified by their condition.

Some portions of the intracranial mass, the “hemispherical ganglia,” are exclusively devoted to intellection ; the offices of “the true spinal cord” are purely physical ; the nerves seem mere conductors of sensations, volitions, and impulses direct and reflex, between the nervous centres and their extremities. These centres are supposed to be sources of nervous power, which is analogous to, but not identical with galvanism, and like it is a “polar force.” This is generated probably too by the organic or nutritive action of all the tissues. The grey vesicular, and the white tubular matter exist together in the brain, spinal cord, and ganglia ; the nerves consist of the white only.

Nervous matter is composed of albumen in combination with phosphorus and certain fatty substances.

The disorders of the various departments of the sensorial system must of course express themselves by prominent impairment of the special function of the portion affected ; this is not always clearly known,

however, and the connection between them all is so close that the lines of demarcation cannot yet be drawn with absolute certainty in many instances. I therefore still follow the usual arrangement, and treat first of the *diseases of the brain and its membranes*.

CEPHALALGIA—*Headache* is one of the most frequent and painful of human maladies. It attends most febrile ailments, depending on the irritation, congestion and inflammation of those affections, and is sympathetic of, or caused by many gastric derangements.

When idiopathic, it seems to consist of a peculiar erethism of the brain, which may be extensive, spreading over the head; or limited to one side—hemicrania; or confined to a single narrow spot. Most persons habitually subject to it have it usually at some particular point.

Its causes are direct and indirect; prolonged and intense impressions of light and sound; strong thought, violent emotion or passion; solar heat, or the warmth of a crowded apartment are among the first—so is the motion of a ship, or a swing—so too, want of sleep—the effect of tobacco, opium, wine, and other stimulants and narcotics. The indirect are found in the disturbances of the digestive system, chiefly acidity of stomach, constipation, &c.

The idiosyncracies of the subject and the contingencies with which it is connected, modify it somewhat and give it a qualifying title—as nervous, sick headache, hysteric headache, &c.

It becomes by repetition almost habitual in many, and returns upon the application of the slightest causes.

Treatment.—Its natural cure or termination is in profound sleep; yet the employment of narcotics is productive of less benefit than would here be expected.

Great care should be taken to avoid its obvious or apparent causes. When this cannot be done the system should be gradually accustomed to them, guarding against any unfavorable circumstances of predisposing character—such as indigestion, costiveness and the like.

Camphor and belladonna have been supposed to exert some specific good effects in the relief of constitutional headaches, and may be employed in small doses. The best remedy is found in the annealing or hardening influence of long and frequent journeys, in which discomfort to moderate extent is incurred.

PHRENITIS—MENINGITIS—ENCEPHALITIS.—Inflammation of the brain and its investing membranes, is divided into acute and chronic. The latter is plausibly alleged to be the proximate cause of most of the diversified forms of mental alienation or insanity, which varies in its history and symptoms in relation to the varying seats and nature of the cerebral affection.

Acute phrenitis is not often met with as occurring idiopathically or independently, but many of its phenomena arise sympathetically, in the course of other diseases; and in the class of fevers, this is so generally the fact, that Clutterbuck and others have maintained cerebral inflammation to be the primary location and essential condition of fever properly so called.

Acute inflammation of any portion of the brain and its membranes, commences with pain in the head, with a sense of fullness, heat, and throbbing; the eyes are red and suffused, and intolerant of light; the face is flushed and turgid; there is pain in the back of the neck, and down the spine; the scalp is occasionally tender to the touch; the stomach is in some cases oppressed, with retching and vomiting; the pulse is full, hard, and bounding; there is great anxiety and mental dejection, or even from the first wild delirium, which at any rate seldom fails to supervene early in the progress of the attack; the hearing is acute, and ordinary sounds occasion distress; there is pervigilium; the tongue is whitish and lightly furred, and the skin hot and dry. If the disease advance unchecked, the patient sinks into a soporose state; the eyes grow less and less sensible to light; there is perhaps strabismus or a fixed state of the pupil, at first contracted closely, and afterwards widely dilated; the hearing is impaired; there is sighing, grinding of the teeth, tremulous debility; respiration and deglutition become difficult, and coma or convulsions precede death.

The *predisposition* is said to be sometimes hereditarily transmitted. It is found to exist in men of irritable and violent temper, and morbid susceptibility to mental emotion; in persons of sanguineous temperament; those accustomed to free and luxurious living; and in the profound student and ardent cultivator of literature.

The *exciting causes* are insolation, blows on the head, gusts of vehement or prolonged passion, and intemperance or excess.

Autopsy.—The appearances after death vary with the duration of the case. The vessels of the brain and its membranes are turgid—lymph is found adhering to the surfaces of the latter, and connecting them by adhesions—serum is often effused over the surfaces and in the ventricles, and pus not unfrequently found mingled with it in considerable quantity. It is not settled whether “softening” of the brain,

"ramollissement," is a result of inflammation or not; I am disposed to regard it as a special vice of nutrition. "Induration" attends rather upon chronic than acute cerebral disorders.

Prognosis is generally unfavorable. We draw the most gloomy inferences from the supervention of great debility, while the local excitement is unabated, and from the tokens of effusion and mechanical pressure, as paralysis, strabismus, deafness, stupor, coma, convulsions.

Treatment.—Bloodletting is universally acknowledged to be indispensable. Some open the temporal artery—some the jugular vein. That vessel is to be selected from which we can obtain the fullest and freest flow of blood. The head should be elevated, and persevering affusions of cold water thrown on it from some height. The scalp should be shaved; cups or leeches may be applied to the skull and behind the ears; but our best reliance is on the lancet and cold affusion, which I prefer to pounded ice, &c. The most active purgative doses should be given—a combination of the resinous and saline, I think, should be preferred, and used freely and as long as the strength will bear. In the meantime the chamber should be kept cool and dark, and absolute silence enjoined. The head of the patient should be elevated, and abundant cold drinks allowed him. He must be perfectly controlled, and by such means as admit of no struggle or resistance.

The convalescence must be for some time guarded most carefully. The diet should be low, the mind kept free from care and anxiety, laxatives administered occasionally, and a total abandonment of such habits as may have predisposed to or excited the attack strictly enjoined.

CHRONIC PHRENITIS.—Chiefly shown in the varied disturbances of the intellectual functions, which are known under the head of *Insanity*. It is important to draw correct distinctions here, and separate from insanity proper—which I regard as uniformly depending upon cerebral inflammation, the numerous modes of mental aberration arising sympathetically in the progress of many forms of disease, as transient and incidental conditions, and implying none of the circumstances of phrenitis.

The irregular and undefinable states of intellection resembling insanity in the absence of control, are not easily distinguished from each other, but must not be confounded—dreaming, reverie, absence of mind, somnambulism, exalted passion, enthusiasm, intoxication modified by the different agents which produce it, delirium, melancholy, fatuity, idiocy and senile imbecility. It is impossible to define *insanity*—difficult by any form of words to describe it, so as to separate it from

either of the above conditions, and yet there is little danger of mistaking them. In fevers we have delirium—in hysteria, there is fatuity or imbecility—in intoxication there may be almost every variety of mental disorder, disturbance and confusion—yet these are not insanity properly so called. Neither is the amentia or the amnesia attendant on epilepsy, apoplexy, and paralysis.

Causes of chronic phrenitis, divided into the moral and physical—the predisposing and exciting. Of *physical causes*, the predisposing are, 1. Hereditary transmission of constitutional peculiarities. 2. Intemperance or excess of any kind. The exciting are, 1. The causes formerly enumerated of acute phrenitis, or acute phrenitis itself imperfectly cured. 2. Gastric and intestinal disorders which, through the close and universal sympathies affecting the brain, act upon that delicate organ. 3. Genital or sexual irritations which derange, in peculiar and inexplicable modes, the various portions of the cerebral tissue. 4. Metastasis of various morbid affections, as on the sudden disappearance of cutaneous eruptions, of gout, &c.

Of *moral causes*, the principal predisposing is found in education, including within that comprehensive term all that conduces to the formation of the character and habits. The imitation of parental peculiarities, eccentricities, and oddities, may thus be enhanced in the child into a forcible predisposition to some mode of insanity.

The exciting moral causes are obvious. The frequent and violent indulgence of passion, the fostering particular trains of thought and emotion, whether pleasant or painful, irritate and inflame the organ of thought. Very sudden and great changes of condition, as from wealth to poverty, or vice versa, produce similar effects.

Pathology.—Bayle refers insanity to inflammation of the meninges, but Foville says, that “as the traces of inflammation are more constant in the brain than in the membranes, we must regard the former as the essential—the latter as the incidental condition.”

Necroscopy indeed reveals to us a great diversity of morbid alterations. The membranes are thickened, injected, adherent both on their opposite surfaces and to the cerebral substance. This substance is injected, thickened—“occasionally,” says Foville, “intensely red. The surface or superficial stratum of the cortical substance is firmer and denser than natural.” Gall and Desmoulins have observed what they call “atrophy of the convolutions—more frequent in the frontal regions; sometimes an actual absorption, leaving chasms filled by serosity.” Esquirol has described the presence of a multitude of small cavities in the brain, “from the size of a millet seed to that of a nut, containing fluid.”

Diagnosis.—Insanity, as the sign, token, or consequence of chronic phrenitis, does not necessarily imply the loss or impairment of any of the intellectual powers; for the brain is a double organ, and it is rare that the corresponding parts on both sides shall be diseased. It consists in and depends upon the loss of the power of precise association, through which the mental operations are conducted to definite and calculable results. This inconsistency, irrelevancy, or *dis-association*, whether merely speculative or practical—this uncertainty of relation and succession in the intellectual actions, is the only uniform and essential symptom of insanity.

Mental derangement, as the effect or manifestation of chronic inflammation of the brain, may be divided into the following varieties. 1. Incoherence.—Some of the cases under this head exhibit a ceaseless activity of the mind, marked by the absence of all the principles and powers of regulation. Even the instinct and natural propensities seem often subverted, and the patient is forgetful or ignorant of the meaning of words, or the connection between thought and action. 2. Mania, which has been often called moral insanity. Here the destructive and mischievous propensities are highly excited, with great cunning and contrivance in adapting means to ends. Among these were the *demoniacs*—the possessed of ancient times. Here also the subjects of *erotomania*, and the desperately profane and blasphemous, are generally to be classed. 3. Melancholy. 4. Hallucination, the form of insanity bordering most closely on delirium. Some of these hallucinations have been incorrectly, as I think, attributed to false impressions made on the organs of sense. 5. Monomania—a perversion of the judgment on one subject or set of subjects, and consequent perverted course of conduct or behavior in relation to them. This is often complicated with the former. Insanity as to a *single* subject is much dwelt on in medical jurisprudence. I believe it to be a very rare condition, if indeed it ever exist.

With the disorders of intellect, there are always combined the obvious marks of physical disease. We find headache complained of by a great many—morbid vigilance, with restlessness. In many, the senses are morbidly acute. In a great majority they receive almost no impressions but such as are unpleasant and annoying. Convulsions, paralysis, apoplexy, not unfrequently supervene, in the progress of cases of chronic phrenitis. The tongue is foul and the breath fetid in most instances; sometimes a viscid offensive saliva is excreted in great quantity. There is deprivation of appetite, and costiveness. The pulse is generally quick, frequent and tense; in some melancholics it is slow. There is much inattention to changes of temperature, but

the hands and feet are apt to be cold. An unpleasant odor often exhales from the entire surface of the body.

The *prognosis* is unfavorable. The tables published in regard to the proportion of cures in different lunatic asylums are somewhat apt to mislead. Proper distinctions are not made between the infinitely diversified conditions of mental aberration resulting from various causes. Hysteric folly, delirium tremens, somnambulism, puerperal mania, &c. are easily and in very large proportions curable, and these are confounded with true insanity or chronic phrenitis.

In our *treatment* we must be guided by the state of the general system. If entonic, we must bleed both from the arm and by leeches and cups from the head and neighboring parts. Venesection is, however, much less frequently and energetically employed now than formerly, and is not perhaps often requisite or serviceable. Purgatives are also useful here; they should not be urged at any time into hasty operation, but a revulsive influence should be long exerted on the intestines. The nauseating and depressing effect of antimonials may be made of much benefit, if perseveringly kept up. Mercurials are sometimes serviceable. I do not depend on them in general, but they may be experimented with. They are best adapted to cases which exhibit notable disturbance of the digestive system.

The importance of *sleep* both as preventive and curative of insanity can scarcely be overrated. Opium is called for by restlessness with pervigilium, the patient suffering much for want of tranquil and refreshing sleep. In such cases, and those which exhibit, during the waking state, peculiar agitation, irritability, and other marks of general distress, I do not hesitate to administer anodynes freely, premising such precautions as may seem requisite—employing the necessary means of depletion and revulsion, keeping the bowels properly open, &c.

Digitalis has been often found of advantage. Cold applications to the head are frequently required. I prefer the occasional affusion of cold water from a height on the head, to the constant application of cold in any way, as it often annoys and irritates the patient.

I advise almost always the removal of the patient, when the insanity threatens to become permanent, to some well managed asylum. In such institutions only can we find and avail ourselves of the requisite means of physical restraint and moral control, not only necessary to prevent the patient from injuring himself and others, but positively and in a very high degree salutary in their influence, and remedial in their ultimate effects.

In atonic cases we must be careful to support the strength of the patient. He must be warmly clad, supplied with nutritious and agree-

able food, and occasionally, though with much caution, indulged pro re nata in the use of diffusible stimulants. Of these, ammonia, camphor, and opium are to be preferred. Tonics are sometimes serviceable, and I have derived advantage from the exhibition of the sulph. quinine, with camphor in small doses, or minute quantities of some of the salts of morphine.

MANIA A POTU.—DELIRIUM TREMENS—*Brain Fever of Drunkards—La Folie des Ivrognes, &c.*—Among the numerous appellations of this remarkable malady, I prefer to retain the first of those set down, as strikingly significant of the cause to which it is attributable. Until we have clearly designated its true pathology, we shall not be able to give it a title absolutely correct and entirely unobjectionable. It is not properly a fever. The line between delirium and mania is not distinctly drawn, and there can be no special impropriety in using the latter phrase, where there is so much mental derangement, with constant hallucination. Besides this, it runs so readily into phrenitis, acute and chronic, as to give good ground for this selection. Indeed, although I confess its *pathology* to be extremely obscure and ill-defined, yet I am rather disposed to regard it as a peculiar form of phrenitis, modified—1st. By the causes which produce it; and 2d. By the morbid condition of other organs, with which it is universally connected.

The *cause* to which it is exclusively ascribed, is intemperance in the use of ardent spirits—distilled alcoholic liquors. The influence of these agents is *slowly* developed in the production of mania a potu, which requires time, and which ultimately shows itself in various forms, according to the several diseases of other organs which may exist in each case. Some have maintained the necessity of a transient discontinuance of the use of ardent spirit, and a consequent exhaustion or prostration of nervous energy from the subtraction of accustomed stimuli. The fact, however, is not so. I have repeatedly seen attacks of the several modifications of mania a potu, supervening during the actual progress of a "*frolic*," or while the sot was living in his usual manner.

Symptoms.—In a majority of instances, the stomach has yielded long previously to the morbid effects of stimulating potations, and the liver and all the other chylopoietic viscera have suffered. There is total loss of appetite, with occasional retching and vomiting, especially in the morning; the bowels are irregular, usually loose with acrid bilious discharges; the hand and tongue are tremulous; the latter thickly furred, with fetid breath, or smooth and fiery red. The mind is deeply de-

pressed, and the state of intoxication into which the patient plunges for relief from this dejection, is often more gloomy and remorseful. At last, the patient wanders—he mutters incoherently and with incessant restlessness; or if he sinks exhausted into a brief and unquiet slumber, starts from it in terror which cannot be soothed. The pulse is weak and very frequent, his skin cool and clammy, his eye red and suffused. Convulsions may occur, but are not usually met with when the stomach is still disturbed with the frequent retching, so prominent a symptom of this form of the malady.

In some patients the brain suffers more immediately, and with much less gastric disturbance previously, or at the time. Some fit of intoxication, deeper and more prolonged than ordinary, terminates in a horrid convulsion, followed by another and another. The unhappy subject may thus die at once; or he sinks into a state of exhaustion, with cold skin, pulse indescribably rapid, and so feeble as scarcely to be felt, with countenance haggard and eyes half shut. After lying thus for some time, his muscular strength suddenly returns, and he becomes capable of prodigious exertions; he is haunted by some frightful hallucination, and becomes extremely dangerous to those about him, whom, in his frenzied anxiety to escape, he will assault and pursue with vehement malignity. This condition may run into acute phrenitis, and sometimes terminates in permanent insanity.

Others again with less obvious affection of the digestive system, and no acute cerebral disorder, sink into absolute imbecility, both mental and physical, mingled with a peculiar shade of gloom and despondency. The skin in such cases is hot and dry; the pulse is small, corded and frequent; the patient takes almost no food, and scarcely sleeps—seems always restless and uneasy; he affects solitude, often mutters to himself, and appears *alarmed causelessly*. In almost all, there is a notable predisposition to suicide.

The *autopsy* of mania a potu develops nothing uniform or characteristic. A variety of lesions have been noted, but are not regular. The “anatomy of drunkenness” shows marks of extensive disease of the stomach, the liver, and the brain; the progress of the several changes or steps of disorganization, is proportioned to the duration of sottish habits. But all these changes may have taken place, without the production of this particular form of disease.

The *prognosis* is generally favorable. Few die in mania a potu, and those few rather of the derangements of the constitution, which are the coincident effects of the cause which has produced the attack. The tokens of a specially unfavorable case are, obstinate pervigilium, which always threatens convulsions—a repetition of the convulsions,

with brief interval—or the occurrence of coma. It is also unfavorable to find the pulse rising and becoming fuller and slower, while the mind continues perturbed. We have here to dread permanent insanity.

The *treatment* must be modified to suit the condition of the patient. Venesection is seldom necessary or justifiable. It may be required to obtain a respite from convulsions. When a *transitus* has taken place to the condition of acute phrenitis, the lancet must be freely employed; this is marked by fullness and hardness and comparative slowness of pulse, by the cessation of trembling of the limbs and tongue, and by a change of the manner of the patient, who is now fierce and resolute, and no longer full of tremor and vacillation. If there be no doubt on this point, the hair may be cut close, and leeches and cups applied to the temples and back of the neck. But such cases, it should be kept in mind, are not common, and this mode of depletion is not to be often resorted to. Cold affusion may be of advantage when the face is flushed and the skin is hot and dry; under opposite circumstances I would not advise it. Emetics have been highly eulogized, but they are of doubtful effect. When the stomach is nauseated, with retching and ineffectual vomiting, with foul tongue and fetid breath, they may do service. They may also be occasionally employed to arouse the susceptibility to the action of other remedies, when we have found ordinary doses incapable of affecting the patient. Cathartics are often beneficial. Calomel, in large doses, is the best. The saline may be added, if the patient be strong and robust. In general, however, it is not advisable to employ cathartics freely. Opium is, unquestionably, our most important remedy. It is applicable to all cases of mania a potu, and has only been subjected to doubt, by having been erroneously prescribed, when the case has run into phrenitis of ordinary character. I prefer the tincture, and prescribe it with unyielding perseverance, in large doses until the patient sleeps. I do not like to combine with it any other stimulant. Camphor and ether are the least objectionable, if an addition be necessary. Nor can I assent to the propriety of exhibiting large masses of solid opium, which may not dissolve at all when most needed, and may lie inactive in the stomach, until a period when its solution and consequent absorption and active influence may be productive of injury rather than benefit. Digitalis is proposed as a substitute for opium, and the tincture is administered in large doses, from one to three drachms, every four or six hours. Thus exhibited, I have seen it unquestionably useful. Chloroform and other anesthetics have lately been resorted to, and as is stated, with the most obvious benefit; the patient being rendered soporose and tranquil by their inhalation.

The management of the patient is a matter of much importance. He

should be kept under the most perfect control, by a sufficient number of resolute attendants, or, which is often better, by solitary confinement. His diet, if he will take any, may be nourishing and well seasoned. His convalescence must be carefully guarded. His mind must not be disturbed with care or business. Tonics may be of use to him, but all stimulants (except those already mentioned) must be positively refused.

The *prophylaxis* of mania a potu—the reformation of the drunkard, is a topic of infinite interest. The peculiar craving or longing after ardent spirit is, in the sot, the consequence of morbid condition of the stomach chiefly. To remedy this, it is proposed to combine sulphuric acid with the accustomed drink, and the effect is said, in some cases at least, to be strikingly advantageous. By others, it is suggested to mingle with the several forms of distilled liquors, the tart. antimon. or ipecac or other emetic, in such amount as to nauseate long and vomit severely. These attempts may sometimes succeed; but in general, they either totally fail or produce only a transient influence. Nothing is to be hoped from any measure short of perfect abstinence; nor is anything to be feared from the abrupt enforcement of the injunction. I would scarcely allow, in any case, the use of a substituted stimulant; but if such an indulgence seemed necessary in a given instance, opium and camphor would suffice abundantly, and the dose being rapidly diminished, might soon be safely withheld.

APOPLEXY may be defined to consist in a loss or remarkable impairment of the power of motion, with insensibility and stupor. The patient cannot be roused, and gives little or no token of consciousness. The action of the heart is usually little disturbed at first, but soon becomes feeble, and after a time ceases. Respiration is performed with some labor and effort, and with stertor generally, the difficulty increasing as the circulation is more impeded.

Causes.—A predisposition to apoplexy is found in a full plethoric condition of body—habits of undue indulgence in the pleasures of the table and venereal gratifications—in mental excitability, liability to gusts of anger, and other violent emotions. Yet it is not the luxurious only who are thus predisposed; similar tendencies are often found in the ill-fated, badly nourished poor. As age advances, the predisposition seems to increase. It is commonly believed to be connected too with a particular form, of which “rotundity, corpulence, with thickness and shortness of the neck,” is the description.

The *exciting causes*, which affect the predisposed are numerous: all stimulants, a full meal, especially if the subject place himself soon

after in the recumbent posture ; insolation, vehement muscular exertions, ligatures round the neck, fits of passion, stooping down for any length of time—all circumstances in short, which either render active the cerebral circulation, determining to the brain, as the phrase is, or which impede the return of blood from the head. Apoplexy is said to be often connected with hypertrophy of the heart, and to follow the sudden disappearance of regular gout, and the suppression of accustomed evacuations.

Diagnosis.—Apoplexy resembles profound sleep, but the sleeper may be aroused ; it is distinguished from syncope, in doubtful cases, by the respiration, which is almost always noisy and laborious—generally by the pulse also, which is full and slow, and the countenance, which is, in the majority of instances, flushed ; from epilepsy, by the absence of distortion or convulsions ; from asphyxia, by the previous history of the case, and in the same manner from the torpor of extreme cold, which closely resembles it. It is very difficult to distinguish it from intoxication, and it is often most perfectly simulated by the hysterical paroxysm. There is also a sympathetic loss of sense and motion from gastric disorder, not easily separated from it.

The *prognosis* is generally unfavorable—perfect recovery from it is not frequent ; hemiplegia is a very common result of the attack ; there is a strong tendency to recurrence of the paroxysm. The best hope of restoration is in the young and temperate, subjects marked by no special bad habit, or other token of predisposition, and attacked under circumstances of transient influence, as from insolation. In the old, and infirm, and intemperate, the prospect is gloomy.

When one side is in any degree agitated, and the other remains motionless, we predict paralysis of the latter. If the pulse sink, the respiration becomes louder, with puffing of the cheeks, and relaxation of the sphincters occur, we expect a promptly fatal termination.

Autopsy.—The appearances vary somewhat, but in a vast majority of cases betoken impediment to the performance of the functions of the brain, or actual lesion of cerebral structure. Hemorrhage is of frequent occurrence. Blood may be poured out upon the surface of the membranes, or within the ventricles, or in the very substance of the brain, with laceration. Serum or seropurulent fluid may be found in the ventricles or upon the membranes. Turgescence of the cerebral vessels is rarely wanting in greater or less degree. Exceptions are however recorded, on good authority, in which none of the above marks of disease within the head were discovered.

Pathology.—Apoplexy is properly the abolition or suspension of the sensorial functions, occasioned by pressure on the brain. Mechanical

pressure, as by fracture and depression of the skull, gives rise to a train of symptoms precisely the same. This pressure may be—
 1. Extravascular, i. e. from fluids poured out, blood, serum, &c.; or it may be—2. Intravascular, from mere fullness or turgid state of the cerebral vessels; which latter condition may disappear at the time of death, leaving no trace.

Treatment.—This must vary with the condition and circumstances of the patient, which in different cases will be strongly contrasted. Apoplexy has, in relation to these diversities, been divided into two forms, sanguineous and serous, meningeal and cerebral, entonic and atonic—phrases significant, and applied with some foundation in propriety. These modifications are explained by the constitutional peculiarities of the subject, by the nature of the cause which has affected him, by the degree of lesion of the brain, and the particular locality of the lesion.

1. A majority of the cases present the following symptoms: The pulse is full and strong, though slower than natural, the face is flushed or turgid, the eyes prominent, the pupils somewhat dilated, though not altogether insensible to the influence of light, the respiration stertorous, the surface is of natural temperature, the features flabby, and the jaw somewhat fallen. There have been for the most part, certain premonitory indications before the fit, such as flashing of light before the eyes, tinnitus and other noises within the ears, fullness or throbbing, or pain in the head and vertigo, with somnolency; and sometimes a failure of strength of the arm and leg of one side, or a sense of numbness in them or in the tongue, for paralysis may precede as well as follow apoplexy.

In this state of things, the lancet should be promptly used and fearlessly, and blood drawn from a large vein or veins, to an amount sufficient to make a definite impression upon the force of the circulation. Apply cold affusions on the head, the hair being cut close or shaved. Active cathartics and enemata must be employed for their revulsive effect; the drastics will be chosen on account of the impaired susceptibility. Counter-irritation by sinapisms to the extremities, and epispastics, will be of service. Emetics are equivocal remedies, and should not be administered, unless when the patient has been attacked immediately after a full meal. The best means of promoting the ultimate recovery of the patient, and of confirming a cure once begun, is to keep up a regular and free determination to the bowels, by the use of efficient purgatives in repeated doses.

2. The patient is sometimes pale or livid, with a cold moist skin, and a pulse feeble and intermittent. Here the lancet is forbidden. Cold

water must be applied over the head, by affusion or with a sponge, and cups to the back of the neck and between the shoulders, or leeches behind the ears or around the anus. Volatiles should be held occasionally to the nostrils, and mustard laid upon the extremities and epigastrium. Stimulating enemata ought to be given without delay, and epispastics laid upon the spine and other parts of the surface. If the pulse rise under this treatment, we may administer purgatives cautiously, and keep up determination to the skin and kidneys by diaphoretics and diuretics. Of the former the antimonials are preferred by some. The nitrate or acetate of potass will act serviceably upon the kidneys.

PARALYSIS.—Under this head I shall notice several diseases, usually recognized as distinct. 1. *Hemiplegia*, or palsy of one side of the body, closely connected with our last subject, as being an affection of the brain, primarily, and always the result of pressure on some part of that organ. 2. *Paraplegia*, palsy of the lower part of the body, transversely divided; the result in a vast majority of cases, of lesion in the spinal cord, though it has occurred independently of it. 3. *Paralysis agitans*; and 4. *Paralysis vacillans*, or chorea sancti viti.

Apoplexy in its worst grade has been considered a complete and total paralysis, but there are degrees even in apoplectic seizure, and the various divisions above stated, are obviously forms of partial paralysis. We may have palsy of a single limb, nay, of a single muscle, or of a few muscles. In colica pictonum, there is palsy of one or both hands. The arm has been palsied, while the hand, if supported, was capable of writing. A palsy of one side of the face is not very rare. The tongue is sometimes palsied. In what I have called *P. agitans*, there may be a constant trembling of the hand, or more frequently, an incessant shaking of the head. This is common with the aged, but I have met with it also in the young and robust. In apoplexy and hemiplegia, the brain is evidently the seat of injury. The mind is disturbed more or less, and both sensation and motion are impaired. In the three latter forms of paralysis, the mind usually remains unaffected and the sensibility of the parts is not changed, the nerves of motion having suffered exclusively. This may either result from some cause acting upon the nervous ramifications which supply the parts, or may depend upon lesion of the portion of spinal or cerebral substance from which these spring.

Ramollissement of any part of the brain is attended with paralysis

usually partial, and some mental failure. The "partio-general" paralysis of the insane, so well described by Earle, is of this character.

Paraplegia, which in a great majority of instances arises from obvious injury or disease of the spine, has been ascribed in a few to cerebral derangement, and has occurred as a sympathetic effect of gastric and intestinal disorder, without any perceptible change in the condition either of the brain or spinal cord. In Chorea sancti viti, paralysis vacillans—styled by some *P. agitans*, incorrectly—the tremor or agitation is not constant, but exhibits itself only at the moment when an effort is made at voluntary motion. The volition fails in part, and the muscles called upon act with vacillation and irregularity, but not feebly. There can be little doubt, I think, that the cerebellum, the organ of association of action, is here affected as well as the nerves, and when the case is severe and protracted, the whole brain may become disordered, the patient becomes fatuous, and there is tendency to convulsions.

1. *Hemiplegia* is nearly allied to apoplexy, which it may either precede or follow. As the consequence of the apoplectic seizure, it has already been spoken of. Its approach may often be observed and foretold. I have more than once marked in the apoplectic, the exact moment of its occurrence, denoted by a slight quivering of the muscles of the face, trunk and limbs, which in an instant relax and subside into a passive condition.

It often invades gradually. The patient first complains of a numbness and tingling of one arm and leg, is apt to trip or stumble, and to let fall what he attempts to hold; there is noise in the ears, and the eye of one side cannot be closely shut; there is some distortion of the mouth, and articulation is impeded. The mind is usually disturbed; the memory generally fails, though not invariably, and some terror attends the feeling of so great a calamity. When fully developed, hemiplegia implies an incapacity to stand or walk, or close or raise the hand; but the power of sensation and voluntary motion in the side affected, though greatly impaired, is seldom if ever totally lost, and in numerous cases the sensibility has remained, or been morbidly enhanced, while motion was impossible, and vice versa; in one remarkable instance, there was loss of power on one side while the feeling of that side continued, and loss of sensibility on the other, the voluntary movements of which were not impaired. These facts are explained, by reference to the independent origin of the two sets of nerves.

Sometimes the case runs rapidly on into apoplexy, occupying from a few hours to a few days, the prostration of muscular power increasing, and the mind becoming more and more disturbed, until insensibility and coma supervene.

Many patients, however, drag out a miserable, protracted existence of months and years of unabated suffering. The nutritive action of the vessels of the affected limbs is imperfect, they shrink and are emaciated, their natural heat being lessened; harshness and dryness of the surface ensues, the ordinary transpiration ceasing; the fingers are pale and waxen, and sometimes contracted; the countenance is distorted by the traction of the mouth to the sound side, the saliva escapes over the chin, the tongue is thick, and when protruded turns to the paralytic side, and the speech is confused and indistinct. There is sometimes severe pain, and sometimes spasmodic muscular contractions on the affected side. *Amnesia* is usually present in various degrees. The memory of words is oftener lost than the remembrance of things or facts. The names of familiar objects are sought for in vain, or incorrect names obstinately applied, and words pronounced by the tongue which the will had not contemplated. The emaciation and debility increase, until the patient sinks, worn out and exhausted by a long train of evils, in which every function has successively suffered.

In a few cases a gradual improvement takes place, and a restoration of some of the capacities for action and enjoyment, but such recoveries are rare. They are attended with formication and tingling of the limb, and sometimes painful swelling, while the power of motion increases slowly and the mind gains strength. According to my own observation, this recovery of motive power scarcely ever takes place except in the lower limb; the paralytic hand is very seldom restored in hemiplegia.

The *causes* of hemiplegia are those of apoplexy, already enumerated—plethora from luxury and excess among the rich, and the apparently contrasted though closely analogous condition arising from imperfect supply of food in the poor; insolation, and intemperance in drinking.

The *prognosis* is unfavorable. It is proved that absorption of extravasated blood, which by its presence in the brain has produced hemiplegia, may take place; but the process is slow and uncertain, and the constitution in the meanwhile sinks under the general impairment of function. Laceration and disorganization of the cerebral tissue hardly admit of restoration.

Autopsy.—The most common circumstance noted in the examination of hemiplegics, is the presence of a clot of blood in some part of the brain. It is usually, perhaps always, enveloped in a cyst, and has undergone more or less change from absorption. The process is slow; the clot has been found undiminished in size, and filling the cyst, two years after the attack. Sometimes the cyst is found empty, with its sides collapsed—at others, it contains serum. Tokens of inflammation

of a portion of brain are found ; there is induration of substance, or softening, a change the nature of which is not well understood. Abscess or effusion of pus, of serum—various morbid growths, tumors and tubercular deposits, have been seen within the brain or connected with the membranes.

The *pathology* of hemiplegia is readily deducible from what has been stated above. It is the result of pressure upon some part of the brain, and the degree and kind of effect are in relation to the locality and extent of the lesion which interrupts the sensorial function. The pressure on which it depends may be, though rarely, intravascular.

The *treatment* must be varied, as in apoplexy, to suit the condition of the patient. If he be young and robust, the pulse full and strong, the face flushed, with pain and throbbing of the head, he must be bled largely, and cold water poured upon the head from a height. Purgatives of active and irritating character must be promptly administered, and their effect hastened by the aid of enemata.

In the opposite state of the system, when the countenance is pale, the pulse feeble, the skin cold and moist, volatiles must be applied to the nostrils, sinapisms and epispastics to the limbs and trunk, and the head sponged with vinegar and water. Enemata may be given, and leeches or cups put to the temples and back of the neck. If reaction ensues, we should deplete, but with caution.

In the protracted state of hemiplegia, the persevering employment of purgatives has done service, and some of the cathartic mineral springs are celebrated for cures effected. Determination to the head must be combated by keeping the head shaved, and occasionally applying a few leeches behind the ears, a blister to the back of the neck or between the shoulders, or inserting an issue or a seton in that neighborhood. Farther revulsion is attempted by frictions with turpentine, mustard, &c., which are supposed to excite locally the enfeebled muscles and nerves. With the same view, the skin of the limbs affected is irritated with tartar emetic, rubbed with rough tow and hard brushes, stung with nettles and burnt with moxa. Both the cold and hot baths are much eulogized. But the most useful means in my hands have been galvanism and electricity.

Dr. G. Bird affirms that "in paralysis from persistent cerebro-spinal lesion, when recent, electricity will do harm ; he has known a fatal apoplectic fit from it : and that when paralysis is attended by rigid flexure of thumb and fingers, it does no good. When in old cases the original cause is removed by time and treatment, electricity is most hopeful, especially the electro-magnetic form ; we must persevere however."

The tonics are much employed, especially the metallic—the nitrate of silver, bismuth, zinc, arsenic. Strychnine has been highly recommended, and is supposed to possess specific and peculiar properties, which adapt it to the relief of the hemiplegic. I have also seen some advantage gained by the careful use of veratrine, both externally and internally employed; the difficulty of deglutition which so much distresses some paralytics, being much diminished after frictions, with the ungt. veratri about the jaws and throat.

Paraplegia is one of the most obstinate and hopeless of human maladies. The spine should be carefully examined, and at any joint exhibiting fullness or tenderness on pressure, leeches or cups should be repeatedly applied. Yet it is said that paralysis is apt to follow the true myelitis or softening of the spinal cord, which is not attended by hyper-sensitiveness.

Tenderness of the spine belongs rather to arachnitis spinalis, in which we have tetanic rigidity of the muscles and spinal neuralgia.

The use of purgatives cannot well be dispensed with, as the bowels are generally much constipated. Iodine and its combinations, with mercury at first and afterwards with iron, deserve a trial as tonic and alterative, while the region of the spine is subjected to constant counter-irritation. This course, with the patient employment of electricity and galvanism, furnish perhaps our most reasonable hopes of improvement.

Under this head we may consider the *paralysis of the bladder*, connected so uniformly with paraplegia, and so often annoying subjects in advanced life. Ergot is highly eulogised here, especially by Day, who recommends it in free doses, ʒi of the strong tinct. ter die in an effervescing draught of cit. ammoniæ. Electro-magnetism is also found serviceable.

Paralysis agitans, if in the old, is incurable. In the young it is connected with various other derangements of health, and will require the treatment to be accordingly modified. In females, it seems dependent upon habitual constipation, and sometimes upon irregularity of the catamenia. Under both circumstances I have succeeded in removing it by employing a combination of some resinous purgative with the rust of iron.

CHOREA sancti viti—paralysis vacillans—belongs generally to childhood and early life. It is produced sometimes by the irritation of worms. I have seen it arise during convalescence from other maladies, as scarlatina, catarrhal fever, &c. I knew it supervene upon the introduction of a needle into a part of the body, and after a duration of some months, suddenly cease on the needle finding its way out of a distant part. It often invades however without obvious cause.

The *pathology* of *chorea* is obscure, and serves to show the close connection existing often between paralysis and convulsion. At first the agitation of the muscles is only to be observed at the moment of volition. Where it has been long protracted the intellection of the patient is impaired. Hence I regard its primary and principal seat to be in the brain; although there may be disturbance throughout the whole of the cerebro-spinal axis. The cerebellum too is doubtless implicated.

Autopsy has not shown any constant lesion. The disease has been connected with various appearances of cerebral turgescence, inflammation, and effusion.

Treatment has been almost purely empirical, yet not unsuccessful. Purgatives given for some time, followed by tonics, the mineral articles being preferred; the cold bath, electricity, antispasmodics and narcotics, are all eulogized on good authority, and are doubtless useful. Of the tonics, zinc and arsenic are most relied on. The *cimicifuga racemosa* is also a favorite remedy. I have prescribed camphor and opium in minute doses, with great effect. In obstinate cases I have seen the best effects follow from galvanism and electricity. Sparks were drawn daily or every second day from the spine; in girls laboring under amenorrhœa, across the pelvis; transmitted along the limbs it is said to do harm, but when partial, sparks may be drawn with benefit over the affected muscles.

EPILEPSY.—This terrible disease is of paroxysmal and recurrent character, the patient usually enjoying good health in the interval, but liable to an occasional attack upon the application of exciting causes of great number and variety, and in bad cases spontaneously, or without the influence of any obvious cause. The paroxysm consists in a sudden loss of consciousness and sensibility, attended, when fully developed, by convulsive agitation of the body and limbs. Convulsion is described as an alternate, involuntary and rapid contraction and relaxation of the muscles of voluntary motion. There is much irregularity, both as to the muscles affected, and the force and quickness of their contraction.

In a fit or paroxysm of epilepsy, as ordinarily occurring, the patient falls, and is agitated with convulsions. The countenance is flushed or livid and horribly distorted, the head drawn forcibly backward, the eyes turned upward and inward, and the lids incessantly in motion. The mouth is rapidly opened and shut, with inarticulate sounds and

moaning, expressive of great suffering; the tongue is mangled by the gnashing of the teeth, and the lips are covered with foam. The limbs are tossed violently or drawn together, with the hands tightly closed; the trunk is twisted to and fro, and the resistance of the sphincters being overcome by the contraction of the abdominal muscles, the contents of the bladder and rectum are evacuated. After a time these convulsions subside, and the patient lies passive, languid and soporose; his intelligence gradually returns, or is at once recovered, after waking from this slumber, but there is no memory or consciousness of what has happened; great debility, and usually some headache, remain for a few hours.

Epileptics often receive a species of warning, which admonishes them of the approach of a fit. In some, this consists in the throbbing of the head, tinnitus, &c., which precede apoplexy. In others, there is an indescribable affection of one or more of the organs of sense, either smell, taste, or sight; to perceive a particular odor is not uncommon, and a patient of my own was always aware of what she denoted "a green taste" just before an attack. Others feel in some part of the body a sensation usually spoken of as "cold creeping vapor," which originating there, moves upward towards the head. This is known as "the epileptic aura;" but the accounts given of it by different patients are dissimilar. Some speak of it as a titillation, others as severely painful, others as indifferent or but slightly uncomfortable.

The *paroxysm* of epilepsy is not always fully developed, as above described, the sensorial and muscular system being affected in various modes and degrees. There may be for a moment, or a very few moments, total unconsciousness—a mist, as it were, coming over the mind, while the muscles remain undisturbed. On the other hand, the intellect may be clear while the aura is felt, and the muscles, if not agitated, refuse to obey the will. One class of muscles may be exclusively and strongly contracted, which is spoken of as the tetanoid form of epilepsy; or the whole muscular system may become at once rigid and fixed in the mode and degree or state of action existing at the precise moment of seizure—a state well known as catalepsy, and of which I have met with two well marked instances. All these varieties may, at different periods, exhibit themselves in the same individual case.

The *autopsy* of epileptics discloses no uniform lesion or derangement. Many affections of the encephalon and spinal cord have been noted, but they are found in comparatively few subjects; and on the other hand, are often observed unconnected with epilepsy. Among them may be mentioned, ossific and other tumors attached to the inner table of the skull, and to the membranes of the brain, and purulent and other effusions upon the surface of these membranes, and in the vertebral canal.

The *pathology* of epilepsy is extremely obscure and ill-understood. The nature of the intermittent disturbance of the sensorial system and function, upon which it depends, is absolutely unknown.

The *causes* of epilepsy are varied and numerous. The predisposition is transmitted hereditarily, and in certain families many of the members become its subjects. In persons thus predisposed, almost every derangement of any organ or function may become an efficient exciting cause. I would distinguish epilepsy, in reference to the first *notable* link in the chain of circumstances which give rise to it, into Idiopathic and Sympathic.

It is *Idiopathic* when it occurs without obvious derangement of any other function than the sensorial, and when we can reasonably refer it to some known agent, capable of directly impressing the sensorial system, as for example, mental emotion of many kinds, and the strong principle of imitation.

It is *Sympathic* when, on the other hand, we trace the sensorial disorder to an indirect or secondary influence exerted upon the brain and nerves, through the diseased condition of some of the other organs or systems: as—

1. The digestive. Dentition and worms produce, by their irritation, many attacks of epileptic convulsion in young children. Intemperance is a frequent cause among adults, though it may be questioned whether in this example, the primary impression be made upon the stomach or the brain. Hepatic disorder has been accused of bringing on epilepsy.

2. The genital. In women, epilepsy is often connected with derangement of sexual health. Masturbation will give rise to it, in both males and females. Venereal excesses have proved fatal by inducing epilepsy.

3. Metastatic epilepsies. Under this head I would include such as precede and follow the exanthemata—such as supervene upon the sudden disappearance of inflammations and the removal of tumors. I have more than once seen such convulsions follow the sudden disappearance of dropsical swellings.

4. Epilepsies connected with “the aura.” This strange sensation has sometimes an obvious cause, in the condition of the part where it commences. The part is sometimes tender on pressure, and sometimes it invites pressure. Where no disease can be traced on examination, I am still disposed to believe there is a morbid local affection of the nerve distributed there.

The *prognosis*, in the first species, or idiopathic epilepsy, is unfavorable, except where it is clearly owing to some transient excitement of the feelings, or when it is founded on the instinct of imitation. In the sympathetic, we distinguish the several forms. Attacks occasioned by

the irritation of worms, or dentition, or even by intemperance, are for the most part readily curable, upon the removal of these transient causes. So also of those which I have termed metastatic, which are not usually obstinate. But epilepsies, arising from genital derangements, take promptly a tenacious character, and are difficult to expel; and in the modification specified under the fourth head, we have little room for hope, unless we can appreciate and remedy the disorder of the part primarily affected with *the aura*, or can detect and remove with the knife the diseased portion of the nerve—means of relief very rarely within our reach. In general, all the forms of epilepsy are difficult of cure, in proportion to their duration. Spontaneous cures of epilepsy occur now and then, but are not well understood. In almost all cases, it is in our power to render the paroxysms less frequent, and perhaps to diminish their violence. But few die in the paroxysm. It is affirmed to have brought on hemiplegia and apoplexy, and by repetition, to tend to reduce the patient into a state of idiocy and fatuity. Many epileptics, however, live long and enjoy unabated vigor and clearness of intellect.

Treatment.—During a fit, loosen all clothing about the neck and body—elevate the head, and sponge or wash it with cold water—place a soft bit of stick, or roll of cotton, between the teeth, to preserve the tongue from injury, and give the patient fresh air. The lancet may be of use, but is not often required. I would bleed if the patient was young and robust, of apoplectic make, with face flushed and turgid, and laboring under some strong excitement of transient nature.

Owing to the extreme obscurity of the pathology of epilepsy, and our total ignorance of the conditions upon which it immediately depends, our efforts for its removal, it must be confessed, are rather tentative than directed by scientific or definite indications. The practice in the case may therefore be considered, without impropriety, under the heads of the palliative and empirical.

The palliative management of the epileptic is sometimes successful beyond our hopes; not only lessening the number of the attacks of convulsion, and subduing its violence, but even in some happy instances arresting the disease altogether. The diet should be strictly regulated—temperate though not abstemious, nourishing but not stimulating. The hair should be cut close, or even shaved off. If at any time the head throb or ache, or the face be flushed, venesection should be resorted to, or cups and leeches applied. Vigorous and constant exercise should be enjoined—studious and sedentary habits abandoned. The administration of cathartics is often beneficial; the most remarkable cure which I have ever seen, was effected by perseverance for years

in the habitual employment of gentle purgatives. In sympathetic epilepsies, besides this general palliative course, we must endeavor to eradicate or remove the primary affection, wherever seated. A careful examination of the source of the *aura* should be instituted, with the view to the counteraction of its influence, in whatever method might be practicable.

The empirical treatment of this justly dreaded malady, consists in the administration of certain remedies, whose *modus operandi* in the case is totally unknown, but whose reputation is the result of tradition and experience simply. I have not succeeded with any of these anti-epileptics, though some of them are in high repute, and have been favorably reported of by physicians of name and authority. They are the nitrate of silver, the salts of zinc, of copper, and of arsenic, digitalis, and the mistletoe of the oak. Successful experiments have been also made with galvanism and electricity. These powerful agents, especially the former, would seem capable of advantageous application here, and deserve repeated trial from the profession.

NEURALGIA.—The physiology of the nervous system is too obscure to admit of a clear understanding of its morbid conditions. The very language which we use in treating of its pathology, is vague and indefinite. Thus neuralgia is the term chosen to denote a painful affection of certain nerves, as if all pain were not essentially nervous; it is intended here however, to exclude the idea of inflammation or structural lesion of the parts supplied by the diseased nerve or its ultimate expansion. Under this head, I propose to consider, briefly, three varieties of morbid affection, closely allied in nature, and analogous in symptoms and results. 1. Spinal irritation. 2. Tic douloureux. 3. Visceral neuralgia.

1. *Spinal irritation* must not be confounded with true spinitis, to which however it may give rise. It has been accused as the obscure source of a long list of maladies, even intermittent fever having been ascribed to it. In ordinary cases, which are much more common in females than males, and in youth than advanced life, the patient complains at first of occasional uneasiness in the back and loins, is easily fatigued, indolent, and unwilling to walk, or stand, or sit erect. Then come on aching along the course of the crural and sciatic nerves, and a feeling of weariness in the lower limbs. The general health yields under the influence of this constant uneasiness, want of exercise and disturbed rest; and a long series of sympathetic affections ensue, terminating in hectic and atrophy, the digestive and genital sys-

tems suffering prominently. If seated high up, irritation of the spinal cord may produce neuralgic suffering of the upper extremities. This will usually follow the course of the ulnar nerve, darting along it to the tips of the fingers, and recurring at every movement.

It is not always easy to diagnose this affection from spinal arachnitis. In both there is great tenderness on pressure; the latter is however apt to be associated with tetanic rigidity of muscles and febrile state of the system, which symptoms are wanting in neuralgia.

2. *Tic douloureux* is a painful affection of the extreme expansion of some external nerve. Good makes three species—*faciei*, *pedis*, *mammæ*—the first being most common. I have seen two instances of the second. The third is happily rare. *Tic douloureux* is paroxysmal, spontaneously recurrent—observing, though not very exactly, the law of periodicity; the pangs suffered during an attack are intense, and of singularly depressing character.

3. *Visceral neuralgia*.—This is also a paroxysmal and recurrent affection. The ganglionic system of nerves is the principal (though perhaps not the exclusive) seat of suffering here, and the anguish of the wretched patient is indescribable. One of its most common forms is known as “nephritic colic;” the kidney, lower intestines, and testes, being assailed with pains of most “atrocious” intensity. All the viscera may be thus attacked. Gastralgia is probably often a gastric neuralgia. Dysmenorrhœa, usually a uterine neuralgia. Some of the varieties of headache are doubtless of the same character, and perhaps some of the cardiac and diaphragmatic affections, so obscure, and so full of pain and danger.

The *causes* of neuralgia are not clearly made out. Macculloch and others after him attribute it to malaria, but it is not more frequent in malarious districts than elsewhere. It is more plausibly alleged to be connected with previous dyspepsia, and sometimes with gout.

Treatment.—All forms of this disease are intractable and tenacious. We may generally relieve a paroxysm with the prompt and unhesitating administration of opium, or some of its preparations. The doses should be as large as the stomach will bear, and for quickness of effect, I prefer the solution, either of the drug entire, or of some of the salts of morphine. The warm bath will aid their action, and so it is asserted will the combination with them of camphor, musk, and assafœtida. In the intervals, guaiacum and colchicum are advised by some, while others rely upon the tonics, selecting arsenic and iron. While there is any tenderness upon pressure locally, either of any portion of the spine (which we should never omit to examine carefully) or any other part of the body, cups or leeches should be applied there, and counter-

irritation assiduously attempted by sinapisms, blisters, issues, and by the ammoniated lotion of Granville, which last I have found specially well adapted.

DISEASES OF THE MOTORY SYSTEM.

GOUT—PODAGRA—ARTHRITIS.—We have to consider gout, like scrofula, in a twofold point of view. It constitutes or depends upon a peculiar diathesis, of which its several local developments are the external manifestations. Regular attacks of gout, however, affect the joints exclusively, whence the propriety of the term arthritis and the arrangement of it here.

The gouty diathesis or constitution may be transmitted hereditarily, determining a predisposition to its local manifestations so strong that they cannot be escaped, the subject being attacked in childhood or early youth. In the generation of the diathesis, full or luxurious living is the most influential agent; this is much aided by habits of indolence and refinement. Climate has probably an effect in inducing this state of the system, as in Great Britain, where gout prevails as extensively among the upper classes of society, as scrofula among the lower.

The nature of this predisposition is not at all understood. It is usually connected with a plethoric habit, and attended by a proverbial exemption from other forms of disease.

The *exciting causes* which tend to develope it and give rise to an arthritic paroxysm, are numerous and diversified. Intemperance—nay, a temperate use of stimulants, even a single glass of wine, will occasion it in the predisposed—so will any indigestible or stimulating food, fatigue, loss of sleep. Local injury of a joint, as a twist or strain of the ankle, is sometimes followed by a fit of gout.

Gout is divided into entonic and atonic—regular, misplaced, and retrocedent. It is *entonic* when the local inflammation is attended with febrile excitement and increased force of vascular action. It is *atonic* when the pulse and strength are below the usual standard—when instead of febrile excitement and local pain, we have general uneasiness and disturbance, with little inflammation of a joint or limb. *Regular* gout attacks a joint and is there fixed, the constitutional disorder being proportioned to the local affection, and disappearing as it abates. *Retrocedent* gout consists in a metastasis of such local affection from the joint first attacked to some one of the internal organs.

Misplaced gout is said to occur, when, at or about the usual period of the recurrence of a paroxysm, or under the influence of the causes which tend to produce it, an arthritic subject becomes affected with much internal disorder.

The *pathology* of gout is confessedly obscure and uncertain. The prevailing opinion of the day, refers the symptoms in all their variety to disorder of the digestive system. In this view I do not concur. The nature of the diathesis, especially when hereditarily derived, is utterly unknown. The local inflammation is of peculiar character, and terminates only in resolution or deposition of earthy matter, never in effusion of pus or serum, or in gangrene.

The *diagnosis* of gout is easy in cases of long standing. A first fit may be mistaken for rheumatism. It is distinguished by its intensity, and its exclusive invasion of the smaller joints, very generally the ball of the great toe.

The *prognosis* in regular entonic gout is decidedly favorable. In atonic irregular attacks it is the reverse; these are often suddenly fatal, whether the stomach, the heart, or the brain be the part affected.

A *paroxysm* of regular gout begins with a swelling of the ball of the great toe, which is extremely tender to the touch, with great tension and redness of the skin, the veins being full and the arteries throbbing. The pain, which is insupportably severe, extends upward towards the ankle and calf of the leg, and is much increased on letting the foot hang. Motion is impossible. There is fever, with headache and uneasiness of stomach; the pain is described as very distinct and peculiar, and attended with a sense of numbness and paralysis of the part. The inflammation occasionally changes from one foot to the other, or extends to the knee. After a duration of a few days, these symptoms subside, leaving the patient in good health. At first the intervals are long, and the paroxysms do not recur for a year or six months, but by repetition their duration is lengthened and their frequency increased, until the local inflammation becomes almost permanent, when we may have the deposition of urate of soda and phosphate of lime, so characteristic of gout.

The symptoms of retrocedent and misplaced gout depend upon the organ attacked. When the viscera of the thorax and abdomen are affected, there appear the usual signs of gastritis, enteritis, pneumonia, &c. When the brain is the seat of the evil, it assumes rather the form of apoplexy than phrenitis; and when the heart is assailed, the case is angina pectoris, or perhaps more correctly a cardiac neuralgia.

When with these arthritic affections there coexists an infirm, debilitated condition of the patient—*atonic* gout—the pulse is feeble and

wavering, the skin cold and clammy, the pain intolerably oppressive, and described as spasmodic, with constriction of the chest or stomach. When these pains are transitory though severe, and shift from place to place, now assailing the trunk and now the limbs, now one organ or part, and now another, it is the "flying gout" of the books.

Treatment.—During the paroxysm, in young and robust subjects, and in the earlier attacks, it will be proper to resort to venesection; but not in the opposite class of cases. Purgatives are almost always useful and necessary; I prefer the combination of a resinous with a saline, adding some aromatic. Emetics are very seldom indicated; I would employ them when the stomach was loaded with a recent full meal, at the commencement of a fit. Opiates are much objected to by some, but in all prolonged paroxysms I am in the habit of prescribing the Dover's powder freely at night, and with excellent benefit.

The tincture of colchicum and eau medicinale, maintained by many to be the same, are on the one hand highly eulogized, as not only safe, but admirably successful: while on the other, they are accused of fatal tendency. I have seen them both employed; there was some advantage gained, yet not much, and no evil resulted. Wilson's tincture, a celebrated secret remedy, perhaps a compound of colchicum and veratrum, is certainly possessed of remarkable power, and will often control and arrest the invading fit of gout.

Local management.—Leeches are generally serviceable; they diminish the pain, if they do not shorten the paroxysm. Some patients are relieved by a soft tepid poultice, while others derive comfort from cold astringent applications, as the solution of acetate of lead, sulph. zinci, &c. I have not seen the good effects promised from opiate frictions and blistering. Percussion and bandaging are recommended by Balfour and others, but my patients cannot bear the part thus handled. With regard to the cold bath, so much a subject of dispute, I would resort to it if, in a young and robust patient, after proper depletion, the pain and inflammation were obstinately prolonged. Under other circumstances I would consider it unsafe, and dread its giving rise to retrocedent or metastatic gout.

During the interval.—Temperance and exercise are the best prophylactics. The diet should be nourishing, but unstimulating. A threatened attack should be opposed by the use of laxatives and tonics. The tinct. guaiac. combines these properties; I have seen it often serviceable. The alkalies and bitters have enjoyed a high repute, but since the Portland powder lost its reputation, are not so much used as formerly.

The *irregular* forms of gout, the *misplaced* and *retrocedent*, must be

treated on general principles. If entonic, the local affections will be highly inflammatory, and will require the prompt and free employment of the lancet, leeches or cups, purgatives, and blisters to or near the part assailed. If atonic, on the other hand, an immediate resort to opium and stimulants is necessary. The tinct. opii may be given in large doses, with ether and other diffusible stimuli, while we apply the quickest revulsives to relieve the affected organ—mustard, hot turpentine, moxa, &c.

RHEUMATISM.—This disease is especially interesting to the physician, from the frequency of its occurrence, the intensity of suffering which it often causes, and the readiness with which, in the majority of cases, these sufferings are relieved by proper management.

Rheumatism may be divided into acute, subacute and chronic. The elements which constitute it, vary in prominence. In the first, the inflammatory, in the last, the neurotic symptoms prevail; in the second they are mingled more equally.

Acute rheumatism presents violent local affection, some part being red, swollen, painful; the larger joints, muscular and tendinous structures are attacked, the suffering is great; fever runs high with nocturnal exacerbations. The blood is buffy and cupped and fibrinous; the sweat is disagreeably acid; the urine highly acid, containing, says Jones, "crystals of oxalate of lime;" the skin is very red. Suppuration is rare; I have seen it occur twice.

Prognosis favorable generally: duration from 7 to 12 days.

2. *Subacute rheumatism*, the most common form, is not marked by chill or vehement constitutional disturbance. Fever usually attends, most pronounced by night. The seat of the local inflammation is chiefly in the aponeuroses—may shift from place to place.

Prognosis rather favorable than otherwise—metastasis is chiefly to be dreaded. The heart most often attacked in this way. Duration indefinite. Relapses frequent. Suppuration rare—deformity and impairment of motion of limb and joint not uncommon.

3. *Chronic rheumatism*, an obscure and varying malady. There may or may not be pain in the joints, but they are swollen and deformed, and become ankylosed; the muscles imbecile and atrophied; the heads of the bones enlarged and hardened or softened; there may or may not be fever; an exacerbation may generally be noted at night. *Prognosis* unfavorable. Duration protracted. Recovery not often perfect. Relapses frequent.

The predisposing causes are not well known, although it is evident,

that certain persons are much more susceptible of seizure than others. One attack renders the subject more liable to a second.

The exciting or occasional causes are more obvious; sudden alternations of temperature, and exposure to cold and moisture, are the chief. So clear is this connection that a partial exposure will produce a local rheumatism, as in the familiar instance of stiff-neck from sitting near a partially opened window or door.

The *diagnosis* of rheumatism is usually easy. It is not liable to be mistaken for any other disease than gout, the characteristics of which are well marked.

Acute rheumatism chiefly affects young adults and middle aged persons. I have seen it however exquisitely developed in a child of three years, and in old people. Both sexes seem equally liable to it.

Chronic rheumatism chiefly attacks persons in advancing years and of otherwise impaired constitutions.

Treatment of the two first forms of rheumatism—the acute and sub-acute. In the robust and strong it is as well to employ the lancet, but this instrument has been used with great imprudence by many, in the hope to extinguish the disease at once. A certain degree of caution is required, or injury will ensue; and although it is undoubtedly proper to relieve hyperæmia (if it exist) in the plethoric, and to reduce the vascular excitement which prevails by bloodletting, yet it should be remembered, that there is something peculiar in the nature of the inflammatory affection, which refuses to yield to mere abstraction of blood; and that this remedial measure when carried too far, has changed a transient or acute, into an obstinate chronic or passive rheumatism. Bouillaud, who bleeds most freely, reports the largest proportion of metastases to the heart, and does not promise any prompt relief than Hope and Latham, who rely on opium and calomel. I do not in the majority of patients, press the mercurial far. Purgatives are undoubtedly useful. I employ the saline in the first stages alone; as the case progresses, in combination with diaphoretics.

Diaphoretics, indeed, have been regarded as specifically adapted to the management of rheumatism. The antimonials are much prescribed.

Colchicum is highly recommended here as in gout. It is said to combine, when given in proper doses, a purgative with a diaphoretic effect, and is greatly depended on by many practitioners. I make much use of serpentaria—at first, with enough of the epsom salt in solution to operate freely upon the bowels—afterwards with some form of opiate. The Dover's powder is invaluablely beneficial, when the earlier violence of excitement has been subdued by the lancet and cathartics, and in large doses will often remove promptly all traces of the disease. In

protracted cases, the acetate of ammonia, with camphor and opium, is highly efficacious; sulphur is also well adapted to relieve. In combination with these, we may frequently administer infus. cinchonæ with striking advantage. Briquet substitutes for it the sulph. quinine, which he employs in large doses—from 5 grs. upwards. The nitrate of potass. is prescribed as specific in very free amount, from 3x to ʒij daily. Lemon juice is recently eulogized as specific.

The local management of rheumatism deserves attention. Leeches or cups should be applied, and the flow of blood kept up by warm fomentations or soft poultices, which will relax and relieve irritation and tension; at a later stage of the attack, sinapisms may be applied, and embrocations of a volatile or stimulating nature made use of. The vapor bath is serviceable. I mention only to disapprove of cold applications in the acute forms.

Chronic rheumatism is a state of disease difficult to describe. It may be the result of an intractable attack of the acute variety. There is a subsidence of fever and of general excitement; the appetite and strength of the patient are in a great measure restored; and the appearances of local inflammation diminish or disappear, with the exception of the swelling, which continues or may increase, the joint being incapable of motion. In general there is no acuteness of pain, but the part is ill at ease, and some cases are attended with excruciating sufferings, which no lapse of time subdues, and in others, fever persists of the low irritative type. The muscles which move the affected limbs emaciate—the joints become large, hard, stiff and misshapen, with a pale and waxen hue of the skin covering them. Chronic rheumatism, when not the consequence of the acute form, is said to select usually women and feeble men; but the most remarkable instance of it which I have ever met with, was in a stout and robust man, a physician, in the prime of life, healthy and athletic. The case is worthy of description, as exhibiting very strongly the characteristic peculiarities of chronic rheumatism. The subject of it was sent for on a warm night in autumn, to see a patient some miles from home; he rode hastily thither, prescribed, and then, bathed in perspiration, lay down to sleep under a window in a strong current of air. On awaking, he found himself incapable of moving without severe distress, every limb and joint being stiff and sore. A brother practitioner being called, bled him 40 ounces, from which time he had no pain. He was still unable to move, and in a few hours after was bled 20 ounces more. He never recovered the use of his hands, but was able to walk slowly and feebly. His joints were swollen, pale and stiff—he emaciated gradually—his fingers were slightly bent, and had the appearance of waxen prepara-

tions. His appetite and digestion were good, and he had no obvious febrile exacerbations, though his nights were often restless and uncomfortable. In this state of helplessness he remained some years, with a clear intellect and cheerful spirit. Having removed to a distance, I know not the manner of his death.

Lumbago and *Sciatica* are two forms of chronic rheumatism, well known and of frequent occurrence in the aged. In these affections of the hip and loins, there is usually much pain and incapacity for motion, but with little fever or general disorder. Some have doubted whether they are correctly to be considered as rheumatic, and have regarded them as affections of the large nervous trunks; but it is difficult if not impossible to draw such lines of distinction as are here aimed at; for many cases of painful affection of distant joints, with swelling, readily recognized as chronic rheumatism of ordinary character, seem connected with or dependent on affections of the nervous trunks, and are relieved by cupping or leeching the part of the spine whence they arise.

Treatment.—In chronic rheumatism I would advise an avoidance of the lancet. The stimulating diaphoretics are our best remedies—guaiacum, camphor, ammonia and opium. Stimulants alone are much employed, and sometimes with good effect. The tinct. cantharid., turpentine, savin, and balsam copaiba, are strongly eulogized. Sulphur is often beneficial, and in feeble subjects may be well combined with infus. cinchon. and serpentaria. The colchicum autumnale is supposed to be well adapted here also. The phytolacca decandra is thought to be similarly useful. The Lisbon diet drink is a formula much employed, and combines some of our best diaphoretics. Experiments have been successfully made with the prussic acid, in very obstinate cases. Endermic medication, by vapor baths, fumigations of sulphurous acid, chlorine, phosphorus, ether, has been much in vogue. The natural hot baths have effected numerous cures in our own country; the springs of mountainous Virginia, and of Buncombe, in North Carolina, are much resorted to, and hot and sulphurous waters are drunk with remarkable benefit.

Local applications have not been neglected, and the number and variety of those recommended at different times, and by different persons, for the cure of this very obstinate disease, are great. Leeches and cups are used occasionally with great advantage. To Dr. Mitchell of Philadelphia, we owe the suggestion of the preference due to the spine, as the place of application—at the part whence arise the nerves supplying the joint affected. Epispastics, the pustular irritation of tart. antimon., moxibustion, the persevering employment of strong friction

over, and forcible motion of the stiff articulation, have all restored patients. Acupuncture has often given striking relief, and so have electricity and galvanism.

The local employment of chloroform has been found productive of great relief in chronic rheumatism, and especially in lumbago and sciatica.

The diet, during the protracted existence of chronic rheumatism, should be nourishing and generous. Motion of the stiffened limb should be resolutely and frequently attempted. If there be any obvious susceptibility to cold, it will be a useful precaution to envelope the trunk and limbs in flannel, or even to apply to the latter the flannel roller-bandage. Friction and percussion and the cold douche have been useful.

DISEASES OF THE EXCERNENT SYSTEM.

Of all the classes of the physiological nosologists, this has been found most difficult to delineate and circumscribe. The business of excretion seems to be divided among many of the organs, which assist incidentally in its performance, while engaged in other functions. Thus the lungs, the liver, and the intestines throw off much effete matter, while busied in digestion, absorption, and assimilation. The kidneys are perhaps the only organs exclusively secretory; we know of no other function in which they are employed than mere elimination. Next to them, the skin perhaps deserves to be considered in this point of view. Excretion is the most important office of the cutaneous integument, although by no means the only one.

The diseases which affect this extended surface are numerous, diversified, and often highly severe; they are of frequent occurrence, and in every respect deserve our particular attention.

Among the chief of the maladies in which the skin is especially implicated, are the EXANTHEMATA or *eruptive fevers*—a group of diseases, so called from the fact, that a cutaneous eruption, preceded or attended by fever, forms the prominent point in their history.

The characteristic peculiarities of the *exanthemata* are the following.

1. They are pyretic or febrile.
2. Eruptive—the skin is affected by a special form of inflammation.
3. Self-limiting—they come to an end at a defined period.
4. Contagious.
5. Self-protective; they do not attack a second time.

Variola, rubeola, scarlatina, exhibit all these characters—and probably pestis, urticaria, varicella, dengue, erysi-

las, pemphigus, are not proved to be self-protective nor self-limiting. Analogies are pointed out which dispose certain writers of authority to class among the exanthems—typhus (Perry,) yellow fever (Hildenbrand,) cholera (Horner,) pertussis (Watt.) These are contended to be self-protective, contagious, febrile, eruptive; the mucous membrane being the seat of the eruption. They are not self-limiting.

Vaccine has its own exclusive history—but like glanders and hydrophobia, does not belong to the list of human maladies; being introduced from the lower animals.

The most familiar of the exanthems combine many circumstances of close analogy. A certain febrile disorder with notable gastric derangement precedes, by a pretty regular interval, a specific cutaneous eruption of definite character. The period at which this characteristic eruption makes its appearance, though subject to occasional and slight modifications, is well known; it is transient in its duration, running a limited course, and then declining and passing away. Smallpox throws forth its eruption on the third day from the invasion of the disease—arrives at its height on the tenth, and then declines. The rubeolous eruption appears on the fourth and declines after the seventh. Scarlatina shows itself on the surface on the second, and fades from the fifth.

They are contagious always, and often become epidemic also. They affect the human constitution but once—a rule which, however, is proved to be subject to occasional exceptions.

In the instances of smallpox, and measles, the gastric disorder is notably diminished as soon as the eruption has appeared upon the skin; in scarlatina this relief is less observable.

The *pathology* of the exanthemata is specially obscure, although there is no want of theory or hypothesis on the subject. The nature of the connection, so uniform and essential, between irritation of the mucous membrane of the respiratory and digestive apparatus, and inflammation of the skin of varied appearance and character, is entirely unknown. It is very common to represent the cutaneous affection as a metastasis of diseased action from the mucous tissue, which is assumed to be the seat of primary irritation, and first assailed, but this is incorrect. The mucous surface is not always, if ever, restored to a healthy condition at the time of the eruption; but the nature of the diseased action is altered. It is now affected similarly with the skin, and continues to be so until the latter is restored to health. In smallpox, pustules form upon it; in measles the red patches are first seen on the palate; in scarlatina, the tongue, throat and gastric surface, are last

to lose their extreme susceptibility to painful impressions, their heightened color and obvious inflammatory condition.

The whole mass of fluids seems to be, in some manner, vitiated in these eruptive fevers, of which the best proof is found in the fact that they are conveyed to the fœtus in utero, when the pregnant mother is attacked. Such instances happen not unfrequently in variola, and, although more rarely, in measles also.

VARIOLA—SMALLPOX.—A well known contagious, eruptive, inflammatory disease. It has been supposed to be indistinctly mentioned in ancient writings, as prevailing among the easterns, but we have no definite description of it until the sixth century.

Smallpox is usually treated of under the separate heads of *distinct* and *confluent*; which terms, however, refer not to any specific difference, but merely to the degrees of violence of the attack, with the amount and extent of the attendant eruption.

Variola commences, like the inflammatory fevers, with a rigor or shivering, followed by heat, pains in the head, back and limbs, gastric oppression, nausea and often vomiting, restlessness, anxiety, and muscular debility. Sometimes there is soreness of the throat, with pain in the side and chest, cough and dyspnœa. In young children the invasion is not unfrequently marked by convulsions. These symptoms continue for three days; on the fourth usually, (it may be twenty-four hours sooner or later,) the skin of the face and breast exhibits an eruption, consisting of small papulæ, slightly projecting and of red color, which afterwards spread over the arms and the rest of the surface. From the time of its appearance, the febrile symptoms decline, and in a great measure subside. These pimples or papulæ assume in a day or two the vesicular form, becoming distended with a thin serous fluid; they increase in number and size, and on or about the seventh and eighth are of a circular shape, with a depression in the centre, of the great majority. On the ninth and tenth, the contained fluid is turbid and purulent. In proportion as these pustules abound, the case is distinct or confluent. In the latter form of smallpox, they often run together, so as to make a complete mask for the face, and on certain parts of the body, those for instance which lie always in contact with the bed, run into large patches and crusts. Where they are not in contact, the skin between and around them is inflamed, red and elevated. There is ophthalmia, and the face and eye-lids are swollen, the mouth and throat are sore, and the patient spits largely a tenacious saliva. About the eleventh day, there is an abatement of the inflammation, both pus-

tular and cutaneous. The pustules, or many of them, crack, and the contained fluid oozes out; they flatten, and by the fourteenth have begun to dry and condense into a hard crust. From the twentieth, these crusts fall off, leaving in a great majority of cases, a permanent depression or pit in the skin.

The case may thus terminate without farther danger or inconvenience, and such is the history of a mild or distinct attack; but when the pustules are very numerous or confluent, we may have them spreading over and destroying the eye, extending into the throat and trachea, occasioning suffocation or severe pulmonary inflammation, and in such instances a secondary fever arises, depending, probably, on the great degree of constitutional irritation, occasioned by so extensive and violent an inflammation of the mucous and cutaneous surfaces. This secondary fever invades at variable periods, from the eighth to the eleventh day. The tongue and mouth become dry; the pulse is very frequent and rather tense, but often feeble; the breathing is difficult; drowsiness comes on, increasing into coma, and the patient sinks exhausted with intolerable sufferings.

The *prognosis* is favorable in distinct smallpox; in the confluent form it is the reverse. Bad cases may be known from the first, by an imperfect eruption, the vesicles rising very little, being rather livid than florid, and filling, or as the phrase is, maturing badly. If at any time the pustules flatten, and the skin becomes pale or livid, the danger is great, especially if the pulse and strength fail, and the mind is observed to wander. The occurrence of any urgent internal determination is to be dreaded, whether to the brain, as shown by delirium, coma, &c., or to the respiratory organs, with pain in the side or chest, cough and dyspnœa.

The sequelæ of smallpox are often very serious. Deformity and blindness, with sometimes a permanent ophthalmia, a chronic diarrhœa, anasarca, occasionally follow it. The voice is in some permanently changed, and rendered disagreeable, by injury done to the soft palate. Scrofula is said to be excited to severe and rapid development, and the predisposition to pulmonary disease generally, but more especially tubercular or scrofulous phthisis.

Autopsy.—The variolous eruption is found not only on the skin, the vascular network of *rete mucosum* being the seat of the pustules, but extends to the mucous tissue lining the mouth, fauces, pharynx, trachea, larynx, and rectum, and upon the conjunctiva. The structure and formation of the pustule in these positions, is not well made out. In the cutaneous integument it is multicellular. The *pit* is occasioned by the sloughing of a circular portion of the *cutis vera*.

In many subjects the brain and its membranes are found dark with vascular congestion. In others the lungs are engorged and hepatized, and the pleura inflamed.

Treatment.—During the eruptive fever of smallpox, if we are aware of the nature of the case, there is little temptation to interfere, when the attack is mild. I know not that there is any risk or evil, in the ordinary management of fever of equal intensity applied here. If at the time of access there are exhibited determinations to the head, lungs, stomach, &c., violent and severe, the lancet may be used, and its effect aided by mild purgatives. The mercurials are supposed to exert here a peculiar efficacy, but of this I am not satisfied. Great gastric oppression, with foul tongue and fetid breath, require an emetic, especially if the retching be insufficient, and fail to empty the stomach of its crude contents and morbid secretions. Mild emesis can scarcely do harm, and is serviceable besides, by favoring a centrifugal determination of the fluids. It often relieves the infantile convulsions which precede the eruption.

The purgatives which I have advised to be used with moderation during the eruptive fever, must be abstained from when the papulæ are forming upon the skin; after this, the bowels should be kept free by laxative enemata.

The use of the warm bath, should be one of our earliest measures in the management of the unwashed and ill clad of the lower class. It is beneficial to children attacked with convulsions, who may be relieved with the lancet cautiously employed, if the pulse be full and hard and the face flushed; and on the other hand, if pale and feeble, may be tranquilized with small doses of the tinct. op. camph. The apartment of the sick should be well aired, and perfectly clean. He should lie on a firm mattress, and if able, sit up occasionally. The cool regimen, so vastly preferable to the heating system anciently in vogue, must not, however, be carried to an extreme. It will, if urged, do harm, when the pulmonary symptoms are prominent. Nor do negroes in general bear it well, unless much modified.

Light mucilaginous drinks should form the only nourishment. The sore-throat should be gargled often with tepid water, and the inflamed eyes washed from time to time with milk and other mild collyria, and carefully protected from light and other irritants.

To prevent the pitting, so much feared, many expedients are proposed. I have not confidence in any one of them. The resort to them in confluent and really severe cases is trifling, and in distinct smallpox there is little deformity left. *Collodion* may deserve a trial.

In the secondary fever, most advantage is derived from the mildly

stimulating diaphoretics, as the *infus. rad. serp.*, with slight additions of ether, camphor, or ammonia. I employ *opium* unhesitatingly and freely, when it is required to relieve the cough, dyspnœa, restlessness, and other sufferings of the patient. It does not seem contra-indicated by any circumstances but those which show a tendency to coma. I prescribe the Dover's powder or the camphorated tincture.

In protracted cases, when the strength yields, cinchona is of much service. The infusion may be combined with other remedies. Extensive crusts are rubbed off occasionally by the motions of the patient in bed, leaving painful sores. These must be dusted with cinchona or finely powdered chalk, the pressure of the body frequently changed by the attendants, and extreme cleanliness inculcated.

If the "striking in" of the eruption, as the phrase is, occur, the pustules flatten and become indistinct, with failing pulse, and cold and livid surface, it is necessary to stimulate promptly and energetically, both by internal and external means.

The treatment of the convalescent requires much attention. He is covered with a new and highly susceptible integument, and is specially liable to the ill effects of exposure and alternations, from which he must be guarded strictly by proper clothing. His diet should, for a long time, be plain and unstimulating, though nutritious.

Variolous contagion is both *palpable* and *impalpable*. It may be communicated palpably by contact with the diseased person or with fomites, and by inoculation, or the direct insertion of smallpox matter into a wound. It is also capable of diffusing itself impalpably through the atmosphere. At what stage of the case a sick body becomes thus a focus of contagion, is not clearly known—perhaps from the seventh day, when a peculiar odor or effluvium begins to be given off. It is strange to see so much stress laid upon the etymological meaning of the word contagion. *Contact* is undoubtedly necessary with *the cause of disease*, "*causæ non agunt, ubi non sunt.*" It is often unnecessary to come in contact with *the sick person* from whom the *contagious effluvium, the cause*, emanates.

The *latent period*, the interval between infection and invasion, is also doubtful; it is usually rated at from nine to fourteen days. The effects of inoculation show themselves earlier—about the fourth day.

Smallpox attacks the same person but once—a rule clear and positive, though not without exceptions. This exemption gave great importance to the practice of *inoculation*, which enabled the subject to select his own time and circumstances for suffering the disease. It is difficult to account for the immense difference in violence and mortality between the casual and inoculated smallpox.

Variola is liable to many modifications in history and character, some of which have been pointed out and separated in common language by special denominations, while the strong similarity which they present to each other and to the common stock of all, is indicated in the use of a word now become familiar everywhere, *Varioloid*.

All the old writers speak of irregular forms of smallpox. Sydenham is particular in detailing the varieties which the disease offered, in the several years of its epidemic occurrence under his own notice. Lieutaud speaks of a "spurious smallpox," occasionally taken for the legitimate. Parr tells us that "the varieties of smallpox are numerous." Others tell us of water-pock, of wind-pock, stone-pock, &c. in almost unnumbered diversity. It was only among the English, and not by them until the time of Heberden, that varicella (chickenpox,) was distinguished from smallpox. Morton of the time of Sydenham, speaks of it as mild smallpox. His cotemporary must so have regarded it, if he met with it at all. And though Heberden, Willan, Rayer and McIntosh talk very positively of the distinctions between the two, yet other writers have not been able to mark them so clearly. Thomson, for instance, maintains varicella, in all its varieties, to be a modified smallpox, and while Willan recognizes it only as presented in the serous or vesiculous form, Rayer acknowledges, that it occasionally assumes a pustulous condition. With regard to the grade, which is made the source of distinction between distinct and confluent smallpox, it should be remembered that Ring has given us a case of confluent chickenpox, and that McIntosh has recorded two fatal cases, one in a child, the other in an adult. Heberden speaks of a malignant sort of chickenpox, in which "the continuance of the pain and fever, after the eruption, and the degree of both these, though there be not above twenty pustules, are, as far as I have seen, what never happens in the smallpox." Chickenpox has been known to pit the skin, and distinct smallpox often fails to do this. If we receive the diagnosis of McIntosh and others, who discern chickenpox by the succession of crops and pustules, what shall we say to Heberden's acknowledgment of his having seen four cases of its unequivocal occurrence in smallpox? These are "the only instances," he says, and his language is striking, "which have happened to me, something like what is *often talked of*—a second crop."

It seems to me that the above observations, in making which I have referred in preference to the older writers, exhibit plainly enough the difficulty of distinguishing smallpox from its kindred affections, if their actual identity be not established. The term varioloid is a new one, first used by Thomson, in his "account of the varioloid

epidemic," which prevailed at Edinburgh, in 1811. Cross gives an excellent history of a similar epidemic, (which however, he terms smallpox,) as occurring at Norwich. The same pestilence, it is asserted, raged about the same time in France, Italy, and Germany, from which last source it was brought into America in 1818, making its first invasion in Baltimore, Md., and Lancaster, Penn. It was first noticed in Charleston, S. C., in January, 1824.

Varioloid has been assumed to differ essentially from *variola*, (smallpox,) because first, it affects persons known to have previously passed through attacks of regular smallpox; secondly, it affects persons previously vaccinated; and thirdly, it presents certain peculiarities of history and character, which serve as distinguishing marks.

The first of these alleged reasons is obviously of no force. It was long since observed, that smallpox sometimes failed to destroy the liability to its own recurrence, and instances of its repetition are to be found in all the old writers. "Petrus Borellus," says Heberden, "records the case of a woman who had this distemper seven times, and catching it again, died of the eighth attack." Dr. Oppert of Berlin, relates the case of a girl, who, at six years of age, had confluent smallpox. Seventeen years after, she was again attacked, and died of the disease. A similar case is authentically stated to have occurred in this city. If it is replied that these cases are too few in number to affect the general rule, that smallpox invades the constitution but once, we readily acknowledge the correctness of the assertion, and proceed to apply the inference to the case before us. During the prevalence of the epidemic of 1823-24, in Philadelphia, (call it *varioloid* or smallpox,) but sixteen persons are reported, by Drs. Bell and Mitchell, as attacked with it, who had previously smallpox. A similar list may be made out of cases of the same kind occurring here, while the pestilence prevailed among us, so limited in number however, as to prove most conclusively, that *variola protects, at least in a certain degree, from varioloid disease*.

With regard to the second point mentioned above, it is only necessary to observe, that no well informed physician of the present day retains any confidence in the absolute *preventive* power of vaccine against the invasion of smallpox, however much he may be disposed to confide in its unfailing *modifying* influence. But of this, more hereafter.

Thirdly, the principal peculiarities which are supposed to characterize the *varioloid*, and to offer specific marks by which we may discern it, are, so far as we have been able to collect, the following:

First, the eruption comes forth in successive crops.

Secondly, the pocks or pustules, when formed, are conoidal, without a central depression.

Thirdly, they are vesicular, and not multicellular, as smallpox.

Fourthly, they are smaller than the variolous.

Fifthly, they contain lymph and not purulent matter.

Sixthly, they dry and fall off without pitting.

Seventhly, their progress and maturation are unattended with secondary fever.

To all these we would rejoin, that the circumstances above described are by no means regular or connected in their occurrence ; and that if they were, they would not imply sufficient distinctness to constitute a separate form of disease. For,

First, in the smallpox, the eruption is sometimes incomplete at first, the pustules appearing to thicken as the disease progresses ; and it is well known to all nurses, to be easy to increase, locally, the number of pocks, by exposure of part of the body to long continued heat, as by lying on it, wrapping it, or exposing it to the heat of a fire.

Secondly, thirdly, and fourthly, the size and configuration of the pustules, vary much in the most clearly defined cases of smallpox. Upon the same individual, some will be seen large, and others small—some conoidal, and others depressed in the centre. The internal construction of the pustules will be found to differ in a corresponding manner ; the conoidal are vesicular—those which present the depression in the centre are, like the vaccine, multicellular, that is, divided into many separate cells or spaces. If we have not grossly deceived ourselves on many occasions, we have further noted that the pock changed its appearance in this regard during its progress ; at first vesicular and conoidal, it exhibited afterwards a depression at the apex, becoming flattened and multicellular. But upon this, as it is by no means important to the argument, we shall lay no further stress, content if we can draw the attention of the profession to it by our remark.

Fifthly, as to the assertion, so often repeated, that it is characteristic of the varioloid vesicle to contain lymph or serum, and not pus or matter, as the common phrase is, I affirm on the other hand, that the smallpox virus is limpid and colorless. The most experienced inoculators, as for example, Parr and the two Suttons, always preferred clear transparent lymph. It is in the latter stages of the pock, after common inflammation supervened upon that which is specific and peculiar, that we find purulent matter ; and the few cases of varioloid or modified smallpox, which run on into this stage, exhibit just as distinctly the formation of pus. If the inflammation of the skin be

stopped at an early stage, we prevent this; and such, as I shall hereafter show, is the most important of the train of effects attributed to the vaccine.

Sixthly, John Hunter has somewhere declared, that in each pock of the variolous eruption, a slough of the *cutis vera* takes place, answering in dimensions to the size and form of the pustules. This sloughing forms the pit or depression left by smallpox, and the circumstance is assumed by him and others—Ring, for example, and Dr. Adams—to be peculiar to and diagnostic of smallpox, and to depend, not upon the intensity of the inflammation, but on its specific nature. Thus they propose to separate varicella or chickenpox, from variola or smallpox. It is easy, however, to demonstrate the fallaciousness of this test, supported as it is by the authority of such high names. A pit is not made by every smallpox pustule. In distinct smallpox, and in inoculated persons, there is frequently left no mark or trace of the location of a pock.

Goethe, when a child, at Frankfort, was attacked by smallpox there—long ill—but had the good fortune to escape without being disfigured.

Mary, Queen of Scots, so remarkable for her exquisitely fascinating beauty, had the smallpox in her early childhood—but, says her biographer, “it must have been of a particularly gentle kind, having left behind no visible trace.”

Nor can it be doubted, that the chickenpox and the (so called) varioloid, occasionally, though seldom, produce similar sloughs or depressions, and so leave marks on the faces of those who have gone through an attack.

Seventhly, secondary fever is often wanting in the mild cases of distinct smallpox, and very rarely occurs in the inoculated. Dr. Parr indeed mentions the absence of it as a peculiar character of inoculated smallpox. It is clear, then, that no inference can be drawn from its absence, of a nature favorable to our opponents. It arises like the secretion of pus from the irritation of the cutaneous surface, and is proportioned in degree to that irritation. It is, therefore, met with now and then, both in varicella and varioloid.

I believe varioloid to be identical in nature with smallpox, because they are promiscuously capable of producing each other. The modifications which have been noted and discussed, I attribute in a vast majority of the instances presenting themselves at the present day, to the influence of vaccine, of which I shall speak presently. In others, (for they are confessedly irregular,) to certain indefinable and varied peculiarities of constitution, or habit, or condition of body in the affected subject.

Under this head of varioloid, I unhesitatingly coincide with Dr. Thomson in comprising varicella (chickenpox.) This gentleman entered upon the course of observations, upon the Edinburgh epidemic, made by him with so much care and nicety, a thorough believer in the opinions of Heberden and Willan, with regard to the separate and independent nature of chickenpox. His candor, however, did not long permit him to remain the advocate of this view of the matter. "During the epidemic, I had occasion," he says, "to observe natural smallpox, modified smallpox, and the disease which I had been accustomed to regard as chickenpox, coexisting in the same situations, and appearing in their progress to produce one another. In three families in particular, situated at a considerable distance from one another, and between which, except through their medical attendants, no sort of intercourse had existed, my attention was strongly excited by observing chickenpox arise in unvaccinated children, from the contagion of malignant smallpox. The occurrence of this event, in circumstances which left no room for doubt, because there appeared to be no possible source of fallacy in the observation, led me to conceive that all the various appearances of the epidemic, in the different classes of persons whom it attacked, might be produced by the operation of one and the same contagion."

Phenomena precisely similar have occurred under my own observation, in the several invasions of this eruptive disease, call it what you will. Such of my patients as had not been previously vaccinated, or had not had the smallpox, exhibited for the most part the regular symptoms of variola, as it is found described in the books and recognized by the best authorities. Those, on the other hand, who had been protected by either of the above means, had the disease modified variously, and in different degrees of mildness—some of them scarcely, others not at all, distinguishable from varicella. That the same contagion is capable of producing these several forms of variolous disease, whether regular or in any manner modified, is not only proved by their occurring thus together spontaneously, or in the natural way, but has been definitely established by repeated inoculation with the matter of the modified vesicle, varioloid or varicelloid, in which regular well-marked smallpox was the result of the insertion of the virus. Among such examples the case of Dr. Hennen's son, of Edinburgh, is most worthy of being detailed. This boy, from whatever source infected, was seized with an eruptive disease, concerning which Dr. Thomson thus explicitly expresses himself:

"If I had been requested to point out the case, which seemed to me to correspond most accurately with the descriptions of chickenpox, I

should certainly have fixed upon the eruption of Dr. Hennen's boy." It was the circumstance of Dr. Hennen's viewing the disease in his son, as a well marked example of chickenpox, that led him to think of instituting the experiments which produced such interesting results. These results may be stated briefly, as follows: In four children inoculated from the above case, the disease was mild, and of short duration—varioid or varicelloid; in two, it exhibited the appearance of smallpox. In three men who caught the infection from sleeping in the same rooms with these inoculated children, the disease was "uncommonly severe"—not to be distinguished from smallpox; and in a fourth, under the same circumstances, "the mildest variety ever described of chickenpox."

Upon these grounds, then, I cannot help reprobating the introduction of a new term, the application of which is not only unnecessary, but calculated to confuse and lead into error. The modifications which have been assumed to constitute a separate disease, dignified with the specific appellation of varioid, are each and all of them to be found described by the old writers, under various names. Thus we have from Dr. Huxham, "an account of an anomalous form of smallpox at Plymouth, in 1741." Thus we meet among the old writers with the phrases, horn pock, stone pock, water pock, wind pock, crystalline pock, swine pock, sheep pock, chicken pock, and numerous others, by which they intended to point out the undefined, but not uncommon varieties, which the variolous eruption occasionally assumed. I have already remarked that chickenpox was familiarly recognized as one of these varieties until the time of Heberden, who separated it under the name of varicella or variola pusilla, in which he was followed by Willan. I now add, that Dr. Bateman, closely as he was attached to Dr. Willan's views in general, found reason to doubt their correctness in this particular, as appears from an extract of a letter, written by him to Dr. Howitz, of Copenhagen, in which he says, "I am much inclined to concur with you in the supposition, that chickenpox is, in fact, modified smallpox."

These varieties and irregularities formerly noted of variolous disease, arose from peculiarities of constitution probably, in some instances; in others, from local or general condition of atmosphere, habits, manners, &c., and perhaps in most, from causes entirely unknown and unassignable.

To all these is now added, a more general and an uniform disturbing cause—the influence, namely, of the vaccine; and hence, at the present day, these variations and modifications are more regular, and better defined than they were of old, as well as infinitely more frequent.

Vaccinia, the vaccine, derives its origin from the cow, (*vacca*.) It was first made known to the medical profession in 1798, by the justly celebrated Dr. Jenner, whom we rank unhesitatingly among the greatest benefactors of the human race. The history of vaccine is an exemplification of the acuteness of the remark of Southey, in his *Omniana*, "that most things are known before they are discovered." Prela, physician to the Pope in 1825, contends, plausibly, from passages in Pliny and Celsus, that the vaccine was known to the ancients, under the name of *boza*. It had been long observed, in Gloucestershire and Dorsetshire, two of the dairy counties of England, that their cows were occasionally affected with a species of ulceration about the udder, which communicated to the hands of the milkers a pustular eruption. The occurrence of this eruption was noticed to have conferred upon such persons a security against the casual infection of smallpox, and such was the "general opinion," says Parr, "that the inoculator, who attempted to convey the smallpox to one who had been thus previously affected with vaccine, was ridiculed." There was no difficulty in following up so plain a hint, and the artificial communication of this disease, as a preventive of variola, was tried first by a farmer of that country, and afterwards by Dr. Jenner, with the most satisfactory results. The early writings of the latter on this subject were received with scorn, and his papers refused publication among the *Philosophical Transactions*. It however forced its way into notice; the value of the discovery was, after vehement and angry debate, established on the most authentic basis, and the zeal of its promulgator amply rewarded by the British parliament. Since that time the vaccine has been extended all over the globe, and all nations of mankind have exulted in the benefits thus bestowed upon them. To the present time it has enjoyed the undoubting confidence of the profession, and at once superseded, and almost entirely suppressed, the practice of inoculation.

Vaccination is performed by introducing, under the cuticle, a small portion of lymph, taken from a vesicle about the eighth, ninth or tenth day, while yet the fluid distending the vesicle is transparent and colorless. The puncture remains unchanged until the third or fourth day, when slight elevation and inflammation are perceptible, which increase slowly. About the sixth, it assumes a regular circular form, with a depression in the centre. The vesicle is completely developed on the eighth or ninth day, and attains the average diameter of one-third of an inch. An areola now surrounds it of an intensely florid red color, and some febrile excitement of the system is perceptible, with stiffness, pain, and slight swelling under the arm, if the vaccina-

tion be performed about the usual spot, above the elbow. The diameter of the areola differs from one to two inches. It is attended with a degree of roughness, hardness and intumescence of the skin over which it spreads—circumstances which denote its existence and extent in the black. The vesicle is multicellular, that is, composed internally of numerous spaces or little cells, which communicate freely with each other. The fluid within these cells begins to dry away on the eleventh or twelfth day, having previously lost its transparency, and become milk or straw colored; the areola at the same time declines, and gradually disappears. About the twenty-sixth day, a hard round scab of mahogany color, smooth on the outside and remarkably hollowed in the centre, falls off, leaving a permanent cicatrix or scar of peculiar and characteristic aspect—its surface being marked with minute pits or depressions, similar to those on the head of a thimble, “denoting,” probably, “the number of cells of which the vesicle has been composed.” It has been observed that, in variolous inoculation, the vesicle forming at the point of insertion has been attended by the eruption of others in different parts of the body; but as respects vaccine, it is a fact of very rare occurrence. Two such instances, however, have been communicated to me.

I shall not attempt to describe any of the numerous deviations from the above history, which are to be met with in the irregularly diversified forms of what are called “spurious vesicles.” Suffice it to say, that any striking or obvious departure from the ordinary phenomena, in the progress of a vaccine pustule, should make us cautious of confiding a patient to its protective influence. Vaccine, like every other disease, may undergo certain modifications from the condition of the recipient, an infinite majority of which are slight and unessential, not affecting its character and influence, nor impairing its genuineness. Others there are, however, though few in number, which change the nature of the specific action, either locally, or in its effect upon the system, and thus render it “spurious.” Of the local modifying causes, the principal and most common is the mechanical irritation of the vaccinated spot, (as by rubbing,) by which a common inflammation is substituted for the specific, and a common sore produced. Erysipelatous inflammation may also supervene, and interfere with the formation of a regular vaccine pustule. Vaccine may, perhaps, be affected by or combine with some forms of constitutional disease, and thus take on a *hybrid* state. All cutaneous affections disturb the regularity of its progress, if they do not hinder the success of the operation, and no physician vaccinates as willingly from a pustule on the arm of a patient known to labor under scrofula, herpes, or lues venerea, &c., as

from a healthy subject. There is a lurking doubt, in the mind of every one, however scornfully he may regard the humoral pathology, whether he may not, by vaccinating from such a case, communicate a mongrel disease.

I am disposed to lay some stress upon the progress of maturation of the vesicle, although this may be slightly hastened or impeded, without detracting from the value of the pustule. Thus, the temperature of the season, if high, may occasion it to anticipate twenty-four or thirty-six hours perhaps; and severe cold on the contrary, by checking the cutaneous circulation, may retard it in an equal degree. The debility or robustness of the subject may give rise to like results.

The pustule should be prominent and clearly defined, and the areola distinct and vivid. There should attend, some febrile disturbance of the general system. The appearance of the scar, as above described, I consider as of much importance. We should re-vaccinate when this peculiar appearance is wanting, and when the scar is smooth and resembles that of a burn.

I do not find the observation made by any writer, but I have certainly noticed the occurrence of a doubtful or spurious vesicle, to cause much difficulty in procuring, subsequently, the satisfactory results of vaccination in the production of a regular or genuine pustule.

Vaccination is, of course, best and most successfully performed with fluid lymph, taken immediately from the vesicle, but this simple mode of communication is not always possible. When required to be transported to a distance, or kept for any length of time, it may be preserved by various methods. The fluid is caught on a small plate of glass, which is pressed closely against another of similar size and shape, and the edges waxed, to prevent the access of air. We receive it on the points of quills, likewise protected from the air by envelopes. Cotton thread is dipped in it, and laid aside with equal care. But in the scab we have the most convenient means of preserving and transporting this invaluable agent. It has been kept for years, and found capable of communicating the genuine disease, just as when recent. It may be protected from the contact of air and moisture, by immersion in softened wax and spermaceti. It is scarcely necessary to remark, that the first scab alone possesses the specific vaccine character; if this falls off, or is rubbed off too early, another may succeed it, but possesses none of its useful properties.

Climate undoubtedly influences much the susceptibility of the human constitution to vaccine. The missionaries to Siam were endeavoring to introduce it into that country many years before they succeeded. Perhaps this may have been owing in part to the difficulty of preserv-

ing the vaccine matter in very hot weather. This is well known in the southern states, where it is common to cease vaccinating during the warm months, and procure a new supply of vaccine from the north at the approach of winter.

Some have strenuously urged the propriety of recurring occasionally to the udder of the cow, the original source of vaccine, to ensure its genuineness, and renew it from time to time; but it may now be looked on as settled, that its primary and essential characteristics are unchanged and unimpaired, by any imaginable number of transmissions. Nay more, it is obviously improved by thus passing through the human system; it is so modified as to have become a milder malady, though not less effectual in its influence on the constitution. A person inoculated directly from the cow, always suffers more, much more, it is said, than one who receives the infection from a human vesicle, and as far as has been ascertained, with no corresponding advantage to compensate.

Among the animals which have been found capable of receiving and communicating the vaccine, are the horse, the ass, the camel, the buffalo, the goat, the sheep and the baboon.

It has been doubted whether variola does not exert a reciprocal influence upon vaccine; whether it tends to prevent its introduction into the system, or in any manner or degree modifies it and disturbs its regularity when so received. But the most positive proof has been obtained, of the transmission of perfect vaccine, through constitutions previously subjected to the variolous impression. It has been in this way brought across the Atlantic, by the successive vaccination of individuals, among the passengers and crew of the vessels, many of whom were known to have had the smallpox. Hence we may infer fairly enough the incorrectness of the opinion that vaccine is only variola modified by passing through the system of a lower class of animals.

Much has been said of the difficulty of communicating the disease more than once to the same constitution. Gregory, of the smallpox hospital, declares that "it is impossible or nearly so, to reproduce the vaccine in anything like its genuine form, where the cicatrix left by a preceding pustule is perfect, and the result of a perfect vesicle."

Dr. Darrach, of Philadelphia, in experimenting on this subject, found that the repeated insertion of the matter in the arms of vaccinated children, occasioned a local disease, exactly similar to that produced by the first operation, with the exception that the pustule and scab were much diminished in size. In none of these cases could fever, or any other constitutional effect, be discovered. Unprotected children were, with complete success, vaccinated from one of these scabs not larger

than a line, (one twelfth of an inch in diameter,) which was the result of a fourth insertion of the virus.

The duration of the influence of the vaccine—the permanency rather of the effect which it has wrought upon the system—has been denied by some who are staunch believers in its temporary power to destroy the susceptibility of the body to the invasion of smallpox. But the mass of facts collected under this head, certainly goes to prove, that whatever may be the result of the vaccine inoculation—whatever the impressions made by it upon the organism—this result, these impressions, are not likely to be impaired or obliterated by any process of time, or any changes in the state of the system from any cause. Of two hundred and fifty cases collected by Dr. Gibson, “in which smallpox is said to have occurred after vaccination, it appears that by far the greater number had been vaccinated less than two years.” In Dr. Thomson’s account of similar eruptions, they occurred at various intervals after vaccination, from a few days to fifteen years, not warranting, in any degree, the suspicion that the power of the vaccine is weakened or exhausted by time. I am nevertheless disposed, on the ground of seeking the highest ultimate security, to advise *re-vaccination*. It is possible that the first infection may have been something less than complete in its action on the constitution. It is also possible that the vehement energy of an epidemic variola may require extra protection by recent and thorough subjection of the system to the mild influence of the vaccine.

To ascertain the true influence of vaccine upon smallpox, is an object of the utmost importance. I will, therefore, briefly and formally recapitulate the points fairly established, by a due consideration of the facts collected on every side.

First. Vaccination is no longer to be regarded as exhibiting the absolute power of preventing the access of smallpox. In *some persons* it does seem completely to destroy the susceptibility to various contagions; *in all* it diminishes notably, though in different degrees, the liability to be infected.

Second. The introduction of the vaccine virus into the system in its genuine form, and in the proper manner, never fails to produce there such changes as to *modify certainly* the future influence of the variolous poison, if, under any circumstances, it should affect the constitution.

Thirdly. The *modification* thus asserted, does not appear to consist *essentially* in a diminution of the violence or duration of the first stage, the eruptive fever. This, though it is in general very slight, may be as severe as in casual smallpox.

Fourthly. Nor does it appear to imply *essentially* a diminution of the quantity of eruption upon the skin, although the number of pustules is usually very limited in smallpox after vaccination.

Fifthly. The great power of the vaccine unquestionably consists in modifying the *progress of inflammation* in the variolous eruption. Hence, the slighter degree of cutaneous irritation, which terminates in numerous instances without secretion of either lymph or pus—the less amount of matter formed in the pustules (when effusion does occur)—the sudden check given, in a majority of cases, to the suppurative process after it has commenced—the early disposition to rapid drying. Hence, the absence or transient duration of ophthalmia, which, with ulceration of the cornea and destruction of the eye, constitutes the worst and most unmanageable sequela of unmodified smallpox. Hence, the rare occurrence of sloughing of the cutis, and consequent pitting, seaming and scarring of the skin. It has now become, happily, as unusual as it once was common, to see a person deformed with these marks of smallpox. Hence, lastly, the infrequency of what is termed secondary fever, and its mildness when it does show itself. This is well known to be the most dangerous of the several stages of unmitigated smallpox; it is tedious in duration, and leaves scarcely one constitution in a thousand, without inflicting severe injury and permanent deterioration. The convalescence from smallpox is, on this account, in the unprotected, notoriously slow. On the other hand there is no convalescence more rapid or more perfect, than that of a patient who has been assailed after vaccination. He recovers both perfectly and promptly.

“Observe,” says Dr. Gregory, “how strikingly opposed to (contrasted with) each other in this respect, are the influences of inoculation and vaccination. Inoculation lessens the quantity of eruption, but does not alter in the slightest degree the progress of inflammation in that which is thrown out. Vaccination on the other hand, while it does not (necessarily) affect the quantity of eruption, always influences more or less the progress of inflammation in it.”

Sixthly. Nor can it be denied, that as far as we have a right to draw our conclusions from the tables of mortality published in reference to this question, vaccination tends much more surely and effectually to the *prevention of fatal results*, than inoculation. Thus among the cases stated to us by Doctors Bell and Mitchell, as occurring in Philadelphia in 1823–24, out of 248, 64 had been previously vaccinated, 1 only died; 7 had natural smallpox previously, three of these died; 9 had been inoculated, 3 of these died; 13 unknown, no deaths. Of those entirely unprotected, (155 in number,) there died 85, more than one-half—a dreadful mortality.

It is surely impossible to set in a stronger light the advantages of vaccination, than is done in the above paragraph. Results similar to these are given in the annual reports of the National Institution of Great Britain, and in every other authentic document, without exception, to which we have access.

If we ask, how has this ancient and justly dreaded pestilence been deprived of its terrors, and shorn of its fatal energies, what shall be the impartial answer? Not by any change in the nature of the case, not by any loss of its inherent power over the human constitution, for the mortality among the unprotected is most appalling—greater than that of yellow fever, or perhaps even the plague, amounting everywhere, it would seem, to fully one-half. Nor is it owing to such protection as inoculation affords, for that practice has been obsolete for the last quarter of a century. But it is clearly attributable, and we do not hesitate to ascribe it, to the kindly influence of the vaccine—the most valuable among the generous benefits conferred upon their fellow men, by the cultivators of the divine art of healing.

MEASLES—MORBILLI—RUBEOLA.—A specific form of fever, eruptive, contagious, inflammatory. It is often epidemic as well as contagious. It is difficult to communicate by inoculation, but Home and Speranza affirm their success—employing blood taken from the vivid patches of eruption; and Von Katona inoculated great numbers successfully both with blood so taken and tears.

Symptoms.—Rubeola makes its appearance with the ordinary tokens of catarrh. There is rigor often, followed by heat of skin, headache, hard and frequent pulse, soreness of throat, watery redness of the eyes, sneezing, a hard and dry cough, nausea and retching. In children, convulsions occasionally attend. This state of things may continue for many days, but usually on the fourth the eruption breaks forth, at first visible on the face and arms, gradually spreading over the body. It is in patches of small red spots, rough and a little elevated. The fever generally abates, but not always on its coming out. The eyes suffer much from it, the adnata being covered and the lids swollen. It begins to fade on the seventh, and soon dies away, the cuticle desquamating in minute branny scales. In the progress of measles, or at the subsidence of the eruption, pneumonia is very apt to develope itself. At this latter period, diarrhœa of very obstinate character often arises. Rubeolous ophthalmia is apt to be persistent.

The *prognosis* in measles is generally favorable, and the danger is fairly proportioned to the attendant maladies above mentioned, the pul-

monary inflammation especially. In children the convulsions are occasionally, though not often fatal. It sometimes happens that the fever is of low typhous type, which is unfavorable. The "striking in," or sudden disappearance of the eruption, is also unpropitious, and excites well grounded alarm.

The *diagnosis* does not seem to me difficult; yet it was not until nearly the end of the 17th century, that measles were separated from smallpox, a confusion which we should now regard as impossible.

It may be confounded with scarlatina, which has indeed been called confluent measles. This very phrase suggests a distinction, for the patches of rubeolous eruption are usually separated by notable intervals. In 1829, however, I saw some cases in which they were nearly confluent. In scarlatina the deep diffused redness of the tongue and mouth is diagnostic. The catarrhal affections are prominent in measles—the sneezing, coughing, &c., and the ophthalmia, which is often absent and very seldom severe in scarlatina.

Pathology.—One might almost venture to declare that rubeola consists in the combination of some peculiar exanthema with catarrhal fever. This affects the human constitution but once, a rule presenting very few exceptions. The eruption may occur alone, a circumstance not unfrequently met with in rubeolous epidemics—the rubeola incocta of Good, R. sine catarrho of Willan, the bastard measles of common people. Now by this form the susceptibility to a second attack is not destroyed nor even impaired. Other varieties of measles are noticed by writers—R. nigra, R. maligna, R. variolosa. I have met with none of these. The concurrence of measles with typhous fever, presents a livid eruption, with great danger, a compound of *nigra* and *maligna*.

Treatment.—It often happens that the catarrhal symptoms which precede the eruption, are not sufficiently severe to call for any remedial management, and the nature of the case is first shown by the appearance of the red patches on the surface. Under such circumstances it is best not to interfere, farther than to keep the patient at rest in bed, and on low diet, regulating properly the temperature of his apartment, which should be moderately but not unpleasantly warm.

In an occasional case something more may be required. If there are tokens of pulmonary inflammation, and the pulse will bear it, venesection should be resorted to, and the cautious use of the lancet followed by the administration of a cathartic, combined with a diaphoretic, as the solution of epsom salt in the infus. rad. serp. The vascular excitement being thus reduced, the diaphoretic should be continued, with some demulcent and anodyne preparation, to relieve cough and procure

rest. Cups or leeches to the chest may be demanded, and the thorax enveloped in warm poultices, if the dyspnœa be severe. In children affected with much gastric disorder and convulsions, the emetic is useful—given perhaps while the subject is in the warm bath, and followed by a mercurial cathartic. The eyes should be kept clean with tepid water at first, and afterwards washed with mild astringent collyria. If diarrhœa comes on upon the subsidence of the eruption, small doses of opium will restrain it, aided by the cretaceous mixture with kino, or by small doses of acet. plumb.

The *pectoral* uneasiness remaining after measles, is best removed by the persevering application of successive blisters to the chest, or the irritation of the tartar emetic ointment, while we administer full doses of Dover's powder nightly.

The sudden disappearance—"striking in"—of the eruption, is always alarming, and apt to be attended with convulsions in children; and in adults, with dyspnœa and abdominal distress. If the pulse be full and hard, we must bleed freely; but if on the other hand, as is more common, the patient has sunk into a sort of collapse, we must resort to the highest order of stimulants. The hot bath, of 100° Fah. at least, must be made ready, while we apply sinapisms to the cold and pale, or livid surface; the camphorated tincture of opium, with the volatile alkali, and hot wine or brandy, must be given boldly and in abundance, until the skin becomes warm and the pulse rises.

When rubeola is accompanied with fever of typhous character, it is proper to premise a mild emetic, after which a mercurial cathartic will be of service, followed promptly by the stimulating diaphoretics, which should be persevered in, adapting the doses to the condition of the patient and the effect produced.

The *convalescent* from measles requires to be treated with caution. His diet must be mild and unstimulating, though nutritious, and he must be clad warmly, and guarded from all exposure.

SCARLATINA—Scarlet Fever.—A contagious eruptive, pyretic disease, characterized by a peculiar efflorescence of a very florid red hue, whence the name designating it. First described about the middle of the 17th century. It is often epidemic, as well as contagious. It has been communicated by inoculation, and as has been asserted, with the same effect as in smallpox, of procuring a milder disease. As a general rule, it attacks but once the same subject.

Scarlatina is divided by writers, commonly, into three varieties, *S. simplex*, *S. anginosa*, *S. maligna*. I regard these as mere differences

in degree of violence and intensity. The attack is ushered in with irregular shivering, attended by oppression at stomach, and nausea, with occasional vomiting; then succeed heat of skin, thirst, frequent pulse, and headache, with sometimes delirium. The eruption appears generally on the second day, but may postpone until the 3d or 4th, showing itself first on the face and neck, and gradually spreading over the trunks and limbs, until it almost covers their surface. On the succeeding day the lining membrane of the mouth, fauces and pharynx becomes inflamed, with ulceration of the tonsils and uvula, in the anginose form. The tongue throws off its fur and assumes a deeply red color, the surface being at first smooth, but soon shining with elevated and projecting papillæ; it is acutely sensible to the touch, or to the application of temperature either above or below its own. The efflorescence, which in many cases is almost confluent, is bright red, hot, dry, little elevated or rough, indistinctly papular. The skin seems thickened. On the 5th and 6th days it begins to fade, and desquamates gradually in minute branny flakes. At this time the hands and feet are swollen, and for some short period the new surface remains morbidly sensible, especially that of the mouth. The inflammation in the anginose form is not always attended with ulceration, but sometimes the tonsils are covered with flakes of lymph or false membrane.

In bad cases the eruption comes out irregularly and is ready to recede. When this occurs, congestion or inflammation of some internal organ is prompt to follow, and we have either dyspnœa with thoracic pain, or vomiting and purging, or convulsions. If the patient be not quickly relieved, the pulse sinks, the countenance becomes ghastly, the complexion pale or livid, the skin cold, and death rapidly hastens on. During the prevalence of an epidemic scarlatina, especially if of malignant or severe character, we meet with cases, among exposed subjects, of sudden convulsion or coma, with flushed face, injected eye, attended usually with nausea and retching. There is sometimes, but not always, efflorescence on the skin, especially of the face and neck. Such attacks are occasionally fatal within a few hours apparently by the vehemence of cerebral disorder.

By the term *scarlatina maligna*, I would designate those cases in which the fever assumes the typhous type. This is common in some localities, where the epidemic visitations of scarlet fever are highly dreaded. The eruption in these attacks may be early or otherwise. The throat is affected with ulceration, which has a tendency to slough, is of ash color, and gives out a fetid odor, and an acrid discharge, excoriating the nostrils, offending the stomach and intestines, and producing vomiting and purging. The internal organs are often attacked at

the onset ; there may be delirium, often quiet and playful, dyspnœa with mucous râle, and intestinal or peritoneal inflammation. The termination of this variety is often fearfully hurried, taking place from the 3d to the 5th day. Recovery is very slow and for a long time doubtful.

The convalescence from scarlatina is attended in many cases with anasarca, and in some with general dropsy. The kidneys, which indeed rarely fail to exhibit tokens of disease during the attack in the morbid qualities of urine excreted, almost uniformly suffer more or less during convalescence. The discharge is either scanty and high colored, or turbid and tinged with blood and strongly albuminous.

Autopsy.—The appearances on examination after death, vary. In some, there is engorgement of the brain, and vascularity of the membranes, with effusion. In others, the lungs are congested and hepaticized ; in others still, there is injection of the mucous surface of the stomach and intestines. As we should expect, the kidneys are variously altered in appearance ; showing congestion, inflammation and granular or fatty degeneration.

Diagnosis.—I have not found it difficult to distinguish scarlet fever from measles, which it most resembles, by the want of catarrhal symptoms in the fever of incubation ; by the confluent extension, and the peculiar appearance of the eruption, which in measles is in patches, more distinctly papular and more prominent. The scarlet tongue, with elevated and swollen papillæ, is also characteristic. They differ much in the sequelæ to which they subject the patient. The books make a confusion between scarlatina and cynanche maligna. In the instances of the latter formidable pestilence which I have met with, the eruption was not general or much diffused, and the tongue continued furred thickly to the end.

Prognosis.—Scarlet fever assumes usually a mild form, and the proportion of deaths is small. The type of fever in the first place, and in the second the degree in which the internal organs suffer, would indicate the force of the attack. Thus, if there were delirium or convulsions, or the ulcers of the throat assumed a gangrenous aspect, or dyspnœa supervened, and especially if with any or all of these there were combined a premature disappearance of the rash or efflorescence, we should know the patient to be in serious danger.

Anginose and malignant scarlatina will be found attended everywhere with a large proportional mortality.

I am apt to lay some stress even in the early stages upon the appearance of the urine. If this excretion goes on freely enough and with but a moderate deposite, the prospects of the patient are probably good.

In bad cases it is sometimes nearly suppressed, sometimes bloody or thick, and of highly offensive smell.

Treatment.—In general it will be sufficient to commence the management of the case with a mild cathartic. For children, I prefer the castor oil; in adult cases, a combination of epsom salts with magnesia, or rhubarb, and some aromatic. In the great majority, no farther interference will be necessary. Small doses of tinct. op. camph. are useful to tranquilize the restlessness of the patient, and determine to the surface. In general the patient will be apt to suffer under ordinary circumstances from the “*nimia diligentia medici*.”

Attacks of more than ordinary violence however occur, in which we are called on for farther aid. If the vascular excitement be specially high it may be reduced by the lancet. The throat being much inflamed, we may apply leeches at the angle of the jaw or on the neck. An emetic will relieve occasionally the oppressed stomach, if it be not emptied by spontaneous vomiting. After the eruption shows itself, the cathartic should be abandoned, and the case trusted to diaphoretics.

Currie, Gregory, and other high authorities, advise strongly the cold affusion in scarlet fever, and attribute to it the best results; while, on the other hand, those who consider the cutaneous eruption in the exanthemata as a metastasis from the mucous membranes, which they regard as the seat of primary irritation, deprecate the application of cold water as extremely dangerous. Truth lies between them; and in general we may decide that the remedy, though safe, is not usually necessary, or capable of the striking good effects which some would teach us to expect from it. Should any form of visceral inflammation arise in the progress of the case, it must be combated with the usual remedial measures. I am not aware that the connection with scarlatina modifies the necessary treatment.

In *Scarlatina maligna*, it is prudent to begin with a prompt emetic, followed by a mild dose of calomel. The cordial diaphoretics are early required, and may be combined with other stimulants in requisite amount. Cinchona, the volatile alkali, and the tinct. op. camph. are among our best remedies. The hot bath should be used, if the surface is cold and pale, or livid, and sinapisms extensively applied. If the bowels are not moved by the mercurial, enemata should be administered. The throat should be washed with tepid water and steamed, and if there be from the ulcers much fetid discharge, likely to irritate the stomach, the emetic may require to be repeated.

Great confidence is placed by many practitioners, in the exhibition of the infusion of cayenne pepper, both as a local corrective of the

morbid condition of the gangrenous ulcer, and as the stimulant best adapted to the exigencies of the case.

The dropsical affections which supervene so often during convalescence from scarlatina, must be treated as formerly advised, under the head of hydrops, with the modification, that they allow and require an early and free use of tonic and aromatic formulæ, as the infus. cinchon. with rad. serp. and camphor, in small doses, with nitrat. potass. and nitrous ether.

I ought not perhaps to omit, that the German homœopathists propose the use of belladonna as a preventive of scarlatina in all its forms. They imagine it to excite a state of disease similar, or identical with scarlatina. The speculation is ingenious, but it is not sufficiently confirmed. My own experiments with the belladonna have been altogether unsatisfactory, but there is testimony enough in its favor to encourage farther trial of it.

ERYSIPELAS is interesting from its complex character and relations. It is variously divided and subdivided. We may recognize three forms : erysipelas verum vel acutum ; erysipelas phlegmonodes vel sub-acutum ; erysipelas erraticum.

Acute, febrile Erysipelas is a true *exanthem*. Its contagiousness is established. It becomes epidemic and associates itself with typhus and with puerperal peritonitis. It is not in any degree self-limiting nor self-protective. In the phlegmonoid and erratic forms indeed, it sometimes adheres with unconquerable tenacity, generating, as Copland phrases it, "a constitutional diathesis;" in some subjects returns frequently from slight causes.

Febrile Erysipelas attacks with chill, succeeded by headache, nausea, heat of skin, frequent pulse, delirium, pain in head, back and limbs. The eruption shows itself on the second day, appearing first on the face and head, with diffuse redness and swelling, especially of the eyelid of one side. The inflammation is not florid but of dusky hue ; with burning and itching, returning slowly, when made pale by pressure. It penetrates all the cutaneous tissues. Vesications form under the cuticle, with œdema and sometimes sloughing of the subcutaneous cellular membrane. It extends sometimes within the mouth, spreading to the fauces, pharynx and larynx, and the patient may be suffocated by œdema glottidis.

During the epidemic prevalence of erysipelas in the south and west, some years since, (from 1841 to 1846,) this cavity was so generally attacked, that the disease came to be known by the appellation of "*black*

tongue," from the intense inflammation and discoloration of that organ. The ordinary duration of the attack is about nine or ten days.

The *prognosis* depends chiefly on the condition of the patient. Sporadic is less dangerous usually, than epidemic erysipelas, and different epidemics vary much in malignancy and proportional mortality. In pure air and during early life, there is no very great risk, unless some complication is present, such as fever of typhoid character, or the parturient state. In advanced age, in childbed, in crowded hospitals and ill-ventilated domicils, many die. The dark hue of the inflamed skin; the soft quaggy feeling of the part, denoting gangrene of the cellular tissue; or dusky vesication with oozing of offensive matter; delirium, protracted, low, and muttering; coma, or prolonged vigilance are bad symptoms. So is the extension of the inflammation within the fauces.

Autopsy shows usually the brain and its membranes injected with blood, and inflamed; effusions sometimes in the cavities, or on the surface of the *emphalon*.

Treatment.—Unlike the other exanthemata, erysipelas requires prompt but judicious interference. Sporadic erysipelas in the young and robust and in the country, demands generally the antiphlogistic treatment; V. S., active purging and the antimonial and saline diaphoretics.

Epidemic erysipelas, as occurring in cities and dense populations, is of very difficult management. In hospitals and when the fever is of typhoid character, depletion is almost forbidden; mild cathartics, with the use of diaphoretics somewhat cordial, such as camphor and ammonia, precede the resort to cinchona, wine, and other stimulants, which often require to be freely used.

As purgatives, colchicum with magnesia are recommended by Graves: calomel with camphor by Copland.

I combine opium and calomel to keep the bowels soluble, determine to the skin, and procure sleep and ease.

Locally, the inflammation is treated in an infinite variety of modes. Nitrat. argent. is rubbed all around its margin to circumscribe it, and placed upon it as a lotion and an unguent. It is perhaps, the most useful of all our applications. Cold and warm water; dry powders; lard; ung. merc. fort.; laudanum; poppy heads; chloride of lime and carded cotton, are eulogized. Seeking the comfort of the patient, I encourage him to try several of them, and choose for himself.

Erysipelas Phlegmonodes—*St. Anthony's Fire*—differs much in its history from exanthematous erysipelas. Here the eruption precedes—the fever is symptomatic—in some violent—in many scarcely pro-

nounced at all. The local inflammation which selects in preference, like the exanthematous, the face and head, but is met with all over the body and very frequently fixes on the lower extremities, is the important element. It is less diffuse—the swelling projects more, with throbbing; and pus is apt to form under the skin, which ulcerates.

Its usual *cause* is said to be intemperance or bad living.

In the *treatment* I would improve as much as possible the condition of the constitution. In a robust plethoric patient I would resort perhaps to venesection, to low diet certainly. The bowels should be moved by a resinous purgative or mercurial. Alkalies with diuretics form a very useful combination—magnesia and colchicum or infusion of cinchona and serpentaria with carbonate of soda. Stimulants are not often necessary, but they may become so in an old or enfeebled subject.

Local treatment is of great importance. In such as will bear them free incisions through the swollen and inflamed parts are frequently beneficial. When inapplicable I resort to nitrat. argent. applied freely over the whole discolored surface, which may then be fomented or poulticed. Dr. Physick blistered the parts; others put on alcohol, ammonia, turpentine—nay, the actual cautery.

Erysipelas Erraticum is a very common form of disease in overfed children and women of gross habits. A strip of skin some inches in length and of a finger's breadth becomes red with itching and burning; or the ear or the eyelid is thus thickened and inflamed. After an hour or two, the eruption disappears from that seat and shows itself in another. Continuing to annoy the patient in this way for a day and night with restlessness, some nausea and slight fever, perhaps it goes away—or in unfavorable cases one of the wandering attacks becomes fixed and passes into erysipelas phlegmonodes.

Treatment.—Low diet—a saline purgative—a tepid bath. The lancet is sometimes used, but I have not found it necessary.

DENGUE.—*Scarlatina Rheumatica* of Copland.—An arthritic fever with cutaneous eruption. This exanthema appeared as an epidemic in the southern states in the summer of 1828, having prevailed previously in the West Indies. Occasionally met with still sporadically, as noticed by Dr. R. Arnold of Savannah in 1848.

The first *symptoms* are usually swelling of some of the smaller joints with immobility. Fever soon comes on—seldom with chill; there is much prostration of strength, headache, pains in back and joints generally. A rash or miliary efflorescence occasionally shows itself. On the third or fourth day fever subsides, leaving behind it great languor,

nausea, furred tongue, great depression of spirits, stiffness and pain of joints continuing, though rather less severe than at first. At a period not very regular, the fourth, fifth or sixth day perhaps, all these symptoms are relieved by the coming out of the characteristic eruption, florid, elevated, in undefined patches, at first on the face, then on the trunk and extremities. When fully developed it is attended with burning and itching—febrile excitement returns and with it the arthritis becomes again severe. After a duration of two or three days the eruption disappears and the patient recovers; but the swelling and stiffness of the joints subside very slowly.

Diagnosis.—It is not certain whether this is the same disease mentioned by Rush as “breakbone fever,” and by Mellis as existing in Calcutta in 1825–26. It probably is. Sporadic cases may be known by the combination of a primary arthritis with an eruption coming on at the subsidence of the first febrile attack, and coincident with or productive of a secondary fever and arthritis, which subsides with it. The nausea and depression persist until the exanthem appears and are ended only by its full development.

Cause.—Dengue is contagious and at times epidemic—beyond this its origin is unknown, like that of other exanthems. It seems to be confined to the warm season and hot climates.

Prognosis.—Death from dengue is rare, and only to be feared in the aged and infirm; but deformity and lameness frequently remained—and convalescence was always slow.

Treatment.—After numerous and varied experiments, I learned to confide exclusively in the management of dengue by anodynes and diaphoretics. On the first access of pain, which was usually severe, and sometimes brought tears from the eyes of the patient and cries from the weak, I administered opium in free doses, preferring the combination with camphor. A warm bath, if at hand, hastened the relief sought for, and the sufferer was left to sleep, covered warmly. On waking, if pain returned, the dose was repeated, and thus the violence of the attack was without fail restrained. The determination to the skin hastened, too, the appearance of the characteristic and essential eruption, and a few days spent in bed enabled the patient to pass with comparative comfort through the course of a self-limiting disease. The troublesome sequela of a quasi rheumatic inflammation of joints and muscles was thus altogether or in great part evaded. After the experience afforded by a few early cases I saw no farther need either of venesection or purgatives. In a very few who could not bear opiates in any form, I had to substitute other diaphoretics, which with warm baths and confinement to bed constituted the whole methodus

medendi. These suffered more and recovered more slowly, but in the end perfectly. I dwell on the confinement as necessary, for exposure to cold air either postponed the coming out of the exanthem or repelled it, and prolonged the attack with great aggravation of the constitutional symptoms, nausea, fever, &c., with additional risk of deformity and lameness of joints. I add only that the slowest and least perfect recoveries were met with (and some deaths too) in those treated by venesection, active purgatives and antimonials.

DISEASES OF THE URINARY ORGANS.

The *kidneys* are the only viscera whose function is exclusively excretory, and this depurative office is of such importance that it can never be impeded or imperfectly performed without serious risk and grave disorder of the system. The urine contains numerous elements, each of which must be thrown off from the blood, as injurious when retained. A knowledge of its normal composition, and its ordinary vitiations is absolutely necessary to the physician.

The nitrogen of the ingesta—effete—finds its way out hence in urea and uric acid; as the carbon does by the lungs and skin, and the hydrogen by the liver.

The kidney is liable to *inflammation* both *acute* and *chronic*.

Acute nephritis, like other phlegmasiæ, comes on with chill succeeded by fever. Severe pains are felt in the loins, aggravated by pressure or motion, and extending down generally on one side, to the bladder, and even the testicle, which is drawn up, with aching in the hip and thigh of that side. There is distressing nausea and great thirst. The urine is scanty, high colored and albuminous.

The *causes* of acute nephritis are external violence, great fatigue; violent, rough exercise, as on horseback; certain irritants produce it, as turpentine, cantharides; and sometimes cubebs and copaiba. It is ascribed to metastasis of the exanthemata and of gout, and of rheumatism. It cannot fail to follow soon or late the presence of a stone too large to pass into and through the ureta to the bladder.

The *diagnosis* is not difficult. We separate it from nephralgia, which alone it resembles, by the presence of fever from the commencement, which does not belong to the history of the latter, though it may arise in its course.

Prognosis.—If of one kidney, accidental and from transient cause,

it is attended with little risk, in a good constitution. If both kidneys should be at once affected, there would be danger in the impediment to the excretion of urine, which always oppresses the sensorial system, soon giving rise to fatal coma. The presence of a concretion must destroy the organ when too large to admit of farther distension of the pelvis and ducts.

Autopsy shows the kidney in various states according to the period at which death occurs—congested, inflamed, destroyed by abscess. The brain is deeply injected with dark blood which contains the uneliminated urea.

The *treatment* of acute nephritis is of necessity antiphlogistic—venesection, purgatives, oily and resinous, with large emollient enemata; cups over the loins, and warm fomentations to that region and over the pubes; and when the bowels have been well moved, free doses of opium with antimonials, to relieve pain and determine to the surface.

Chronic nephritis presents similar symptoms with less intensity. At first a feeling of fatigue readily brought on, with aching in the loin and in the side and groin and testicle—urine high colored, scanty, albuminous, turbid. Exercise increases the symptoms—the patient emaciates with dejection of spirits. There is usually a febrile paroxysm in the evening with restlessness.

Cause; diagnosis; prognosis; autopsy—are all such as described under the head of acute nephritis.

The *treatment* consists in local depletion, keeping the bowels soluble, and the employment of the less irritating diuretics, such as buchu, digitalis, colchicum. Some prefer the alkaline and neutral salts, the carbonates of soda and potassa, and the acetate of potassa. There is relief often obtained at the watering places, rather I think by the amount of fluid drank, than its quality.

Urines are *morbid* in *quality* and *quantity*. The average excretion in health is about thirty-two ounces in twenty-four hours, varying according to season and circumstances.

Diabetes consists in augmentation of quantity; *insipidus* only thus: *mellitus* with substitution of large addition of sugar and deficiency of urea, which is left in the system. Not less than 42 pounds have been passed thus per diem.

The opposite condition of *anuria*—*paruria inops*—is more frequently met with as a symptom in certain diseases, as in cholera asphyxia and yellow fever. It is always unfavorable and injurious. It must not be confounded with *suppression* of urine, or its retention in the bladder. If ever idiopathic, it produces great disorder of the system and especially of the brain, with stupor and coma, from the poisonous effect of the

constituents of urine retained in the circulating fluids. In less degree it is associated with dropsies, perhaps as cause, more probably as coincident effect of some common cause of both.

Urines are morbid in quality by change of proportion of normal elements ; defect of some constituent principle. In gout and rheumatism we have undue amount of uric acid, and the urates ; in diabetes, defect of urea ; and here also, the presence of a new body, sugar ; and in *oxyluria*, oxalate of lime and sometimes blood corpuscles and blood itself, and albumen and fatty globules in Bright's disease, or albuminuria.

Every practitioner should be familiar with the more simple tests by which the qualities of the urine may known. Paper colored by litmus will show whether it is acid or alkaline. When albuminous it will show a coagulum if heated in an iron spoon over the flame of a lamp ; and when a few drops of nitric acid are mingled with it. The concurrence of these tests will form a correct diagnosis of albuminuria. With a good microscope we can detect crystals of oxalate of lime. For more minute examination and analysis, the young physician may refer to the works of Bird and Prout.

The majority of these changes and vitiations result not from primary disease in the kidneys, but in the organs of digestion and assimilation. Yet though this is ordinarily their history, I am ready to admit, with Holland, that the kidneys, though more rarely, may be the original seat of the difficulty, by the impairment of their function. Hence result the several *concretions* known as gravel, renal and urinary calculi, and stone in the bladder ; which consist of phosphates, lithates and oxalates of soda, ammonia, lime. The presence of these is known by deposits from the fluid when cold ; by chemical analysis ; by the use of the microscope ; by the irritation they occasion in passing, when small enough to pass through the ureter and urethra, and their being found after passing ; and by certain symptoms which they occasion in the urinary organs, while present in the kidney, the ureter, the bladder, and the urethra.

These are mechanical in all cases but one, known in modern pathology as *OXYLURIA*, and but recently diagnosed. The *symptoms* of oxyluria depend on the presence of oxalate of lime in the urine. It is attended not only by the mechanical sufferings which belong to the history of all other urinary concretions, but shows itself by the uniform development of nephralgia ; combined with the worst annoyances included in the history of dyspepsia. There is no fever, nor any token of local inflammation. The pulse is slow and soft, generally ; the muscular strength not good, fatigue coming on promptly, with increase of the aching in the loins, hips, back and thighs. Paroxysms of intense

suffering are apt to assail from time to time with an ill-defined periodicity, in which the groin and testicle are affected, the latter being vehemently retracted.

Flatulence attends or follows a paroxysm—constituting what has been called nephritic colic. The urine is amber colored—may show neither deposit nor morbid contents on chemical analysis, but the microscope detects the crystals of oxalate of lime diffused throughout, acicular, cubic or dumbbell or kidney shaped. The frequency of this morbid state has been recently discovered to be great. It is ascribed to a special vice of assimilation.

The *treatment* of a paroxysm of *nephralgia* in the subject of oxyluria requires the free use of opium or rather of morphine, which can be more promptly made available by its concentration, and disturbs the stomach less. The hot bath is serviceable—and warm fomentations to the loins and lower part of the abdomen. Tics or flashes of pain running through the bladder and to the end of the penis betoken the passage of a concretion through the ureter, which when accomplished, gives immediate and great relief. Its exit from the bladder must be aided as far as possible by procuring a large flow of urine by diuretics—and retaining the discharge until a full stream is ready to be projected forcibly. The transition from *nephralgia* to *nephritis* which sometimes occurs, must be watched. If the skin becomes hot and dry with or without a chill, and the pulse hard and frequent, venesection local and general will be necessary. A purgative will often relieve the severity of pain even purely neuralgic. I do not hesitate to employ for the same purpose as an anesthetic, chloroform in proper amount.

To correct the oxalic diathesis, we must pay strict attention to the diet: not more than a moderate portion of nitrogenized food should be allowed, though the subject as a dyspeptic would suffer too much from confinement to vegetable aliment exclusively. Certain articles, containing oxalic acid and lime, are to be shunned. Wines and malt liquors are to be avoided. The bowels should be kept regular, and muscular fatigue and mental anxiety evaded as much as possible. The nitro-muriatic acid has been highly eulogized; I have seen it fail. Colchicum and magnesia for short periods are beneficial. The mineral waters—those especially which contain carbonic acid—do service, but must not be persisted in too long. Local counter-irritation is of service. Granville's liniment, or tinct. aconitine, may be chosen.

In general terms, the treatment of those urinary disorders involving the presence of morbid urines, with or without deposit or concretion, has not been, as yet, much advanced by the application of our chemical knowledge. We know no certain means of correcting

the tendency to form such concretions within the kidney, or to dissolve them when formed. We still hope for the discovery of such means, and must seek for them perseveringly. The indications to be followed are, to determine to the skin, whose function is adjuvant to or contrasted with that of the kidneys, by warm clothing, frequent bathing, friction, &c., and diaphoretics ;—to improve the condition of the digestive functions, by careful attention to diet, and by the use of such tonics as act favorably upon the stomach, among which iron is generally preferred ;—to correct any special tendency or diathesis discovered to exist by those chemical reagents which promise most, as the use of alkalies in the uric acid diathesis, and nitro-muriatic acid in oxyluria ;—to relieve undue determination to or congestion in the kidneys, by local depletion, counter-irritation, and the employment of the mild aquæous diuretics and those which have been found specially adapted, —as colchicum, uva ursi, buchu ;—and lastly, by careful observance of all such rules of regimen as may be required in every special case to bring up the system of the patient to its best condition of general tone and health, as by traveling, voyaging, visits to watering places, interruptions of occupation, bodily and mental, and repose of body and mind.

Bright's disease—Albuminuria.—Granular or fatty degeneration of the kidney is one of the most serious diseases of these organs. It is known by the name of the distinguished writer who first called the attention of the profession to it; by a term expressive of its most prominent symptom; and by phrases denoting its alleged *pathology*. It is a chronic affection, gradually undermining the constitution with a long train of *symptoms* not well defined, and affecting most of the organs and functions. The complexion is sallow and anemic; the muscular system weak with emaciation; the appetite defective; digestion impaired, with diarrhœa or alternate torpor of bowels; there is œdema and at last general dropsy. The urine is highly albuminous, sometimes bloody, with micturition.

The *cause* is not clearly known. It is often connected with previous disease, following scarlatina and smallpox, &c.; and ascribed to intemperance, mercurials and scrofulous affections. Walshe says it is owing to a primary vice of the blood.

Autopsy shows the cortical portion of the kidney granulated and in a condition resembling the fatty degeneracy of the liver.

The *treatment* is uncertain, and far from generally successful. Venesection is advised in the early stages, and in patients in whom loss of blood can be borne, both general and topical. The mercurial cathartic is preferred by some—by others the hydragogues, as jalap with cremor

tartar. As diuretics the acetate of potassa with colchicum, buchu and digitalis. Tonics are exhibited—iron, zinc, gentian and cinchona are chosen. A warm climate should be sought.

DIABETES.—Inordinate secretion of urine. The quantity of this excretion is varying continually with the difference of temperature, moisture of air, food, drinks, states of body and emotions of mind.

Some headaches are regularly attended with large limpid flow of urine; hysteria and certain other nervous affections strikingly exhibit the same symptom.

I once saw a case in which about 24 lbs. were discharged in 18 hours. The patient was a mulatto woman between 60 and 70 years old, who seemed much debilitated by it. It was connected with no obvious cause, ceased suddenly, and she recovered promptly and entirely.

The books speak of a diabetes insipidus: I have never met with it, unless the above may be so regarded. Diabetes is usually characterized by a peculiar vitiation of the inordinate amount of urine, which contains *sugar* and presents little or no trace of urea. The fluid is sometimes frothy, giving out a faint subacid smell, and attracting flies and other insects. Many pounds of such urine are discharged daily for weeks together; the strength of the patient decreases rapidly and emaciation ensues. The duration of diabetes mellitus varies much however; it is often connected with bulimia and polydipsia, the digestion being very good and the appetite insatiable, and of course prolonging his life. There is even in some, a stage in the progress of the disease in which fat is deposited, disappearing as the case grows worse, supervening again if it is arrested, as the first stage of recovery. It may last for months and years. I saw a fine young man die of it in little more than a fortnight. The degree of profluvium has an influence on its duration doubtless, and this varies from 18 lbs. to 42 per diem. In advanced stages there is a constant sense of weariness in the loins; irritative fever is present, highest in the evening; the mouth and general surface are very dry.

The *cause* is not well known. It is ascribed by some to intemperance; but I have met with it in three persons remarkable for their abstinent habits. The promptly fatal case above mentioned, was in a gentleman who had never during his 25 years of life *tasted* either wine or ardent spirits. He attributed his attack to the fatigue of constant standing at his desk.

Pathology.—Diabetes mellitus consists in some obscure vice of digestion and assimilation. The development of sugar takes place in

the stomach itself; it has been found there, and in the intestines and upon the feces. (Bernard says sugar is always formed in the liver.) It abounds so much in the urine, as to be strongly perceptible to the taste, and to attract flies. The fluid contains, also, frequently the *torula cerevisii*, or yeast-plant, and ferments rapidly. A portion of the uneliminated urea is found in the blood.

Watt regards diabetes as a cachexy, like gout and scurvy. Some maintain its dependence on a primary morbid condition of the great sympathetic nerve.

Autopsy shows little or nothing to account for the symptoms. The body is much emaciated. The kidneys are sometimes fatty.

Prognosis generally unfavorable, though some patients recover. There always remains a strong tendency to relapse. The danger is proportioned to the amount of fluid discharged, and the proportion contained in it of *sugar*; this Todd looks upon as the diuretic which urges the kidneys to morbid activity.

Treatment.—On chemical principles, vegetable diet has been absolutely prohibited, and the patient kept exclusively upon animal food, as highly azotized. All fermented drinks are ordered to be abstained from. Bouchardât affirms positively, that "if all amylaceous matter be taken from the food, sugar will disappear from the urine:" but Todd denies this. There is no doubt however, that this course of management is productive of very useful results.

Opium and the mineral acids have been, of all medicines, most confided in, and are very freely used. Combined with them some prescribe iron, lead, zinc, as tonics; others cinchona, kino and catechu. The bowels are to be kept soluble during this treatment by the resinous purgatives, aloes, rhubarb, &c. V. S. has been employed in some robust subjects; it is said with benefit. More frequent advantage is alleged to have been derived from topical depletion by leeching and cupping the loins, and from counter-irritants applied to the same region. Emetics frequently repeated and long persisted in, are affirmed to have been decidedly serviceable.

CYSTITIS.—*Inflammation of the bladder* may be *acute* or *chronic*. The former is rare, except as supervening on the latter, a fatal instance of which once occurred under my care.

Symptoms.—It is readily known by the locality of the suffering—the incessant micturition and dysuria; febrile irritation runs high, with restlessness and delirium.

The *chronic* form is not unfrequent in advanced life, when we have

similar symptoms in less urgent degree. The urine is full of thick mucus; is sometimes loaded with phosphates; sometimes alkaline; the frequent calls to pass water wear out the contractile powers of the sphincter, and the fluid dribbles away constantly, with scalding and offensive smell.

The *cause* of cystitis is sometimes difficult to detect. It follows upon excess, debauchery, and intemperance. It may arise from morbid conditions of the urine when containing irritating matters, solid and fluid; or it may be the result of a gonorrhœal affection extending upwards along the urethra into the bladder, or of gleet with stricture, or of the remedies employed for the cure of these affections.

Autopsy shows thickening of the bladder, sometimes to a very great extent, and even ulceration.

Treatment.—In proportion to the acuteness of the attack and the youth and vigor of the patient, the antiphlogistic regimen should be instituted and carried out with energy.

Venesection will sometimes be required more than once; and we may generally leech the pubes or perineum with much advantage. Warm fomentations should be assiduously applied. The bowels must be freely moved with oily or resinous purgatives, aided by large tepid enemata.

Opiates must be administered to relieve the severe suffering of the patient; they may be combined usefully with relaxants and diaphoretics, as ipecacuanha and camphor. Some advise alkalies and diuretics. I have however, found them irritating and injurious, with the exception of magnesia and digitalis, which may occasionally be properly prescribed. Subacid mucilaginous drinks may generally be allowed.

These last mentioned remedies are better adapted in *chronic cystitis*, which is also benefited by the use of the thermal springs and sulphur waters.

Cytherismus, cystorrhœa, or "irritable bladder," demands similar *treatment* with the affection just spoken of. Indeed it is hardly to be distinguished from it. We may remark the absence of febrile excitement, far less emaciation and general disturbance of the constitution as *diagnostic*. We may venture upon a less timid employment of diuretics here. Vegetable articles of this class, which combine some tonic qualities, as uva ursi and buchu, deserve a preference. Infusions of these and a solution of tannin are injected into the bladder with good effect. Common green tea is also employed in the same way.

THE END.

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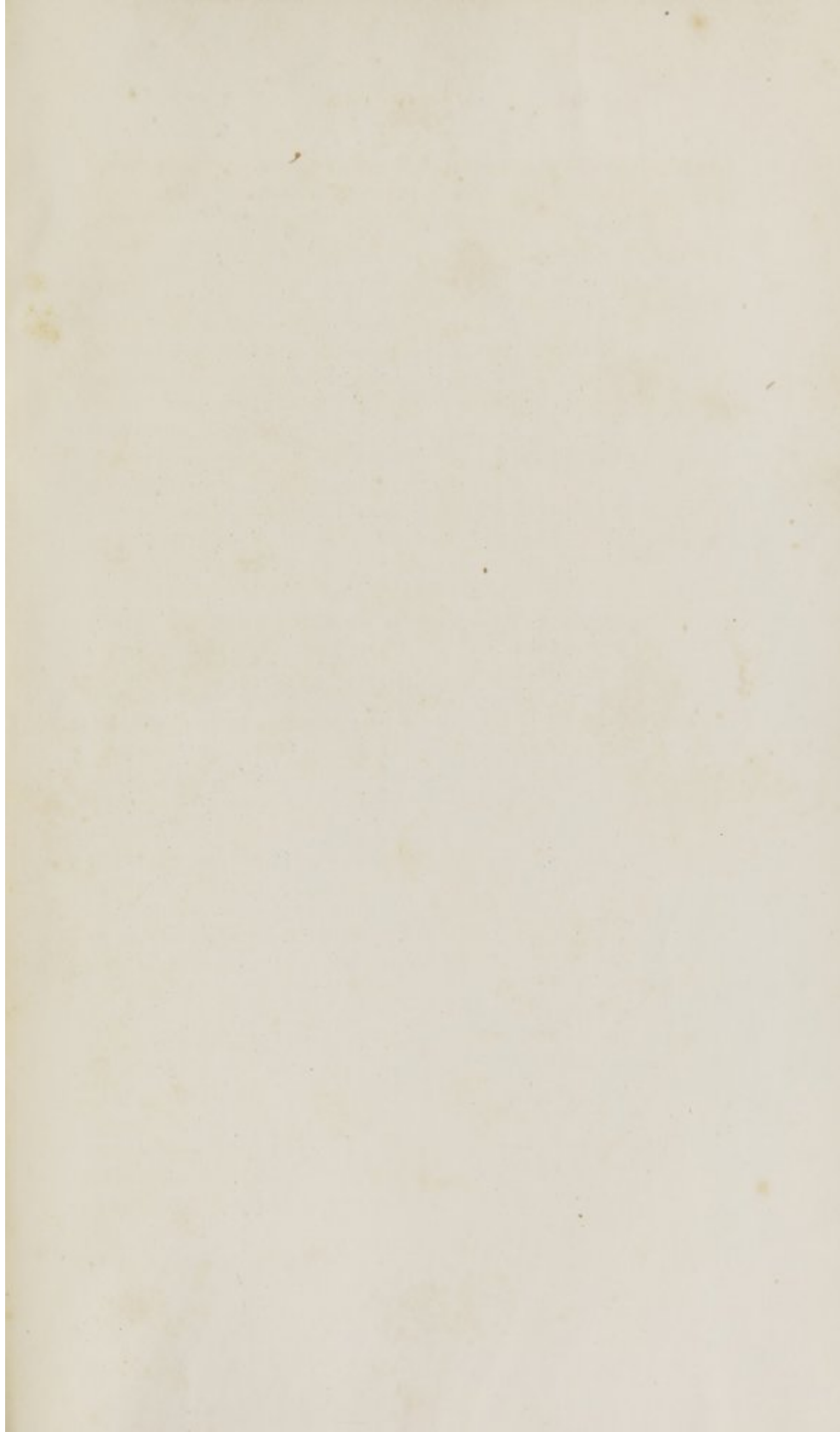
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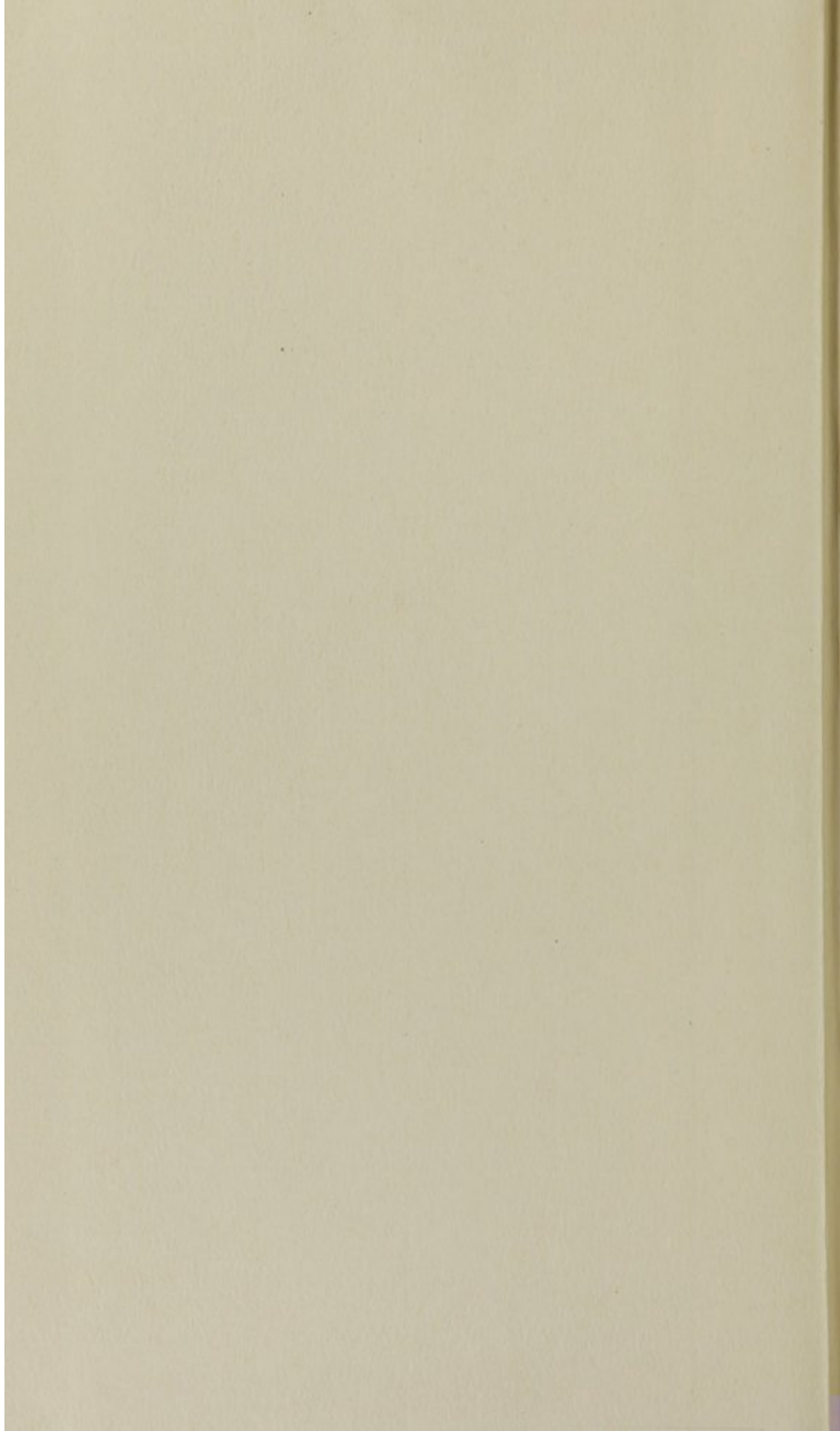
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