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THE

ECLECTIC

PRACTICE OF MEDICINE

BY

JOHN M. SCUDDER, M. D.,

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THIRTEENTH EDITION.

THIRD REVISION.

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PREFACE TO FIRST EDITION.

For some years I have been urgently solicited by members of my class and others to prepare a work on the Practice of Medicine. The constant labor incident to a large practice, lectures through eight months of the year, and contributions and editorial supervision of the Eclectic Medical Journal, has hitherto seemed to present an insuperable obstacle to so doing. Even now, it has only been by a sacrifice of personal comfort, and to some extent of other engagements, that I have been enabled to gratify their desires. While this may account for many defects as a literary work, I will not offer it as an apology for the *matter*, which I have the egotism to believe will prove satisfactory to the reader. To render it as practical as possible, and a ready work of reference to the practitioner, I deemed it best to avoid all unnecessary description, and in many cases give what I believe to be facts, without adducing any reasons. If I had done otherwise it would have destroyed its usefulness as a *hand-book* to those for whom the work is intended. I have, also, deemed it best to group diseases, not according to their pathological character as is usual, but according to the organ or part affected, believing that in this way the study of diagnosis would be easier. In conclusion, I have confidence that the treatment laid down will in no case disappoint the reader, if carefully employed, as it has been the result of close investigation and extensive experience.

PREFACE TO THE EIGHTH REVISED EDITION.

In this revision, which has occupied me the past winter, I have endeavored to so change the treatment that it will correspond to what we now know of *Specific Medication*. The description of disease has been left very nearly as it was, some additions being made to the number of diseases; but in many places the treatment has been wholly re-written, and very much extended. It is principally the result of my own observation and experience—at least to this extent, that I have proven in practice the truth of nearly every statement. The endeavor has been made to point out clearly the relation between "disease expression" and "drug action," so that the reader may determine accurately the indications for remedies, and may not be disappointed in their action.

I have to thank the profession for the very liberal and constant support they have given me, and hope the present volume will repay to some extent my indebtedness. It might have been better, if I had had time and strength to have entirely re-written it, but as it has served our purpose well for the past twelve years, so I hope it may continue to be a reliable guide until some one furnishes a better.

Cincinnati, April 10, 1877.

PREFACE TO THE THIRTEENTH EDITION.

TWENTY years ago I did not expect to write a Preface to the eighth, much less to the thirteenth, edition. But the years have passed, and thousands of physicians have made it their guide to the practice of medicine, and hundreds of thousands of cases of disease have been treated according to it. The work has had a most thorough and practical test, and has received the uniform commendation that it is a reliable guide in diagnosis and treatment.

In the very nature of things this is the last revision which I will make, and I commend it to its readers as the best I could do with the many cares and labors of an active business. At one time I hoped to entirely rewrite it, but on rereading it I found that whilst I might improve some parts, there were others that I could not equal, and it all had that practical value which comes from constant contact with disease.

CINCINNATI, *January* 1, 1891.

THE ECLECTIC

PRACTICE OF MEDICINE.

INTRODUCTION.

In the *curriculum* of medical study, the department of "the practice of medicine" is most difficult. The reasons are two-fold: *First*, it is instruction without such means of illustration as appeal to the senses—descriptions of phenomena, which the student has not witnessed, and which, not unfrequently, he is illy prepared to understand. *Secondly*, the impression that the practice of medicine is almost wholly empirical, stands in the way of that careful study of therapeutics based upon pathology, which gives a rational practice of medicine.

The very great change which has taken place in medical practice in the past ten years, even in our own school, renders it necessary that much of the past be unlearned, if we desire to profit by the advanced knowledge of the present. The world has reached that stage, when men refuse to be bound by the authority of precedent. The past is estimated at its just value; due credit being given for facts when reproven by the present, and but little value attached to theories.

We have arrived at that period in medicine, when we can believe in the curative power of nature. We can understand that the human organism, so perfect in health, that it adapts itself to all conditions, and all uses, renewing itself from day to day, from month to month, from year to year, possesses also the power of resisting disease, of removing it, and of restoration of structure and function.

We understand clearly, that our power of influencing the system for good is limited, and that the old ideas of forcibly

removing disease by medicines, as we would expel an intruder from a house, are most fallacious. That what we may do with advantage, is in the direction of nature's efforts, and must be based upon a correct appreciation of life, as manifested in the human body.

When we reflect that disease, if allowed to run its course without medicine, using only that care in nursing which would naturally suggest itself in such a helpless condition, is attended by but a very small percentage of mortality, we will be better able to appreciate the fallacy of the old and the advantages of the new. It is well established that even in grave disease, such as the fevers and inflammatory diseases of this country, including *typhoid* and *typhus*, the mortality is but from one to five per cent., diet and rest being alone relied on. Whilst under the old treatment, the mortality in the same class of diseases ranged from twenty to sixty per cent; and with the more modern treatment, which discards many of the antiphlogistic means, it is yet from five to thirty per cent.

These facts teach us to be careful in estimating the value of medicines in the cure of diseases. If they are thoroughly appreciated, we will cease to attribute *life saving* properties to medicines, and be more ready to study their real uses.

Eclecticism in Medicine.—It may be proper in this place to define our position in the medical world, for if there be just grounds of difference from other schools, these will be found principally in the practice of the art. If there be such difference, it should be clearly understood, and enunciated in such form that it will be a guide in medical study.

The name Eclectic signifies to choose, and the school which has assumed it, claims the right to choose or select from all other systems of medicine whatever they may deem true and best adapted to the relief and cure of the sick. They not only claim that they have the right to choose, but that they *have chosen* the best from all sources.

Now if we have no rule of choice—no better or different light to guide us in our selection than our fellows, then we are guilty of an insufferable egotism, and have no right to the name we bear. Other schools claim the same right of choice—claim that they also take the best from all sources, and that in this respect they are *truly* Eclectic. What then has guided us in

our selection in the past, and by what rule shall we be guided in the future?

The great principle upon which Eclecticism is based, is: *that disease, wherever met, and in whatever form manifested, is an impairment of vitality; that causes of disease are depressing, and whilst they exist, lower vital power.* The corrollary from this is: *that all agencies employed in the treatment of disease should act in one of two ways—removing the depressing cause, and increasing the vital powers for better resistance and subsequent restoration of structure and function.*

Guided by these principles we discard all those remedies and means which have been classified as antiphlogistic. We not only reject bleeding, the use of mercurials, of antimony, etc., but include as well, the abuse of emetics, cathartics, diaphoretics, and diuretics. It is not sufficient to say that we object to killing the sick by blood-letting and mercury; but we object to any remedy or agency when employed upon the same principle, and which impairs the power of resistance to disease, and restoration to health.

These principles lead us to select such remedies as act according to nature's methods of cure—that restore and stengthen the important vital functions; that remove causes of disease through natural outlets; and that favor the processes of waste and nutrition, giving a better *renewal of life.*

As we advance in this direction, we find less and less need of harsh and unpleasant remedies; less and less need of the old plan of indirect medication—the system of substituting, one morbid action for another. On the contrary, the remedies and their influences become more pleasant, and their action more direct and certain.

I profess no prophetic spirit, but I am as sure as that I live, that these principles will form the basis of the practice of medicine in the future, and that all schools must sooner or later come to them.

Specifics in Medicine.—Whilst I do not believe that we will ever have *specifics* according to the general acceptation of the term—that is, single remedies for the cure of a disease according to our present nosology, *i. e.*, a remedy to arrest inflammation of the lungs, a remedy for pleurisy, a remedy for dysentery, for diabetes, for rheumatism, etc.—I am satisfied that the medicine of the future, will consist of *specifics for pathological condi-*

tions. Even now the whole tendency of medicine is in this direction, and we have quite a long list of remedies, which are positive in their action, and which, diagnosis being correct, will always give the same results. Of such remedies I need but specify *Veratrum, Aconite, Belladonna, Gelseminum, Macrotys, Hamamelis, Collinsonia, and Cactus.* But belonging to the same class, is that right knowledge of the action of certain remedies in increasing secretion by way of the skin, kidneys and bowels; the knowledge of those that improve digestion and blood-making; of those that add to, remove from, or change the blood; and that influence the vital process in its first manifestations, or the nutrition of the body.

It will not do to mistake the premises. Specific medication is based wholly upon an accurate knowledge of pathological conditions, and never upon the *tout ensemble* of symptoms, to which nosologists give special names of disease. The study of medicine will doubtless be far more difficult, if we take this view, than if we pursued the old and beaten path, but it will be far more satisfactory, and will yield a greater success. Indeed we may say that it offers the only basis for a rational system of medicine.

In the past it was deemed sufficient to enumerate the remedies that *might* be employed in any given disease; as, for instance, in a case of pneumonia, you *may* give an emetic, cathartics, any of a dozen or more expectorants, diaphoretics, diuretics, narcotics, stimulants, tonics, etc. But the reasons for administering the one or the other, or the time or condition in which they would prove most available, was not, and could not be designated. In a case of pneumonia, there was authority for the use of a hundred or more different medicines, but the selection was left to the practitioner's judgment. Necessarily with the same teaching there will be a very great variation in practice, and it will be good or bad just in proportion to the natural tact and experience of the prescriber.

In the following pages I propose to teach medicine in a different way. Rules for the selection of remedies will be given, and, so far as possible, their curative action explained. Necessarily, much will depend upon the grouping of symptoms, to show the exact pathological state, and the indications for remedies.

We have learned that remedies influence the body in direct and uniform ways; that they have an elective affinity for certain organs and parts; and that there is a direct relation between disease expression and drug action. We say that the expressions of disease point out the remedies which will relieve and cure, and that a right diagnosis should be to determine this relation, rather than to give an arbitrary name to disease. The real object of our examinations of the sick is to determine the remedy or remedies which will cure.

In most cases of disease we find a series of lesions which go to make up the whole. Thus we may have a wrong of the circulation, a wrong of innervation, a wrong of the digestive apparatus, a wrong of retrograde metamorphosis and excretion, or a wrong of the blood. It is possible, in some cases, that means will be required for each of them, but in very many we find that some one wrong serves as a basis for the whole, and if it is removed, the entire series disappears. Thus in a case of infantile fever the wrong of the circulation may be the principal one—the *frequent, small* pulse calls for Aconite, and given in medicinal doses, the fever is arrested. If we take the more common case of periodic disease, quinine the remedy, we have a very striking example of this therapeutic doctrine. The disease may be a simple neuralgia, an inflammation of any part, a lesion of any function, as well as a malarial fever, and if *periodicity* is the pronounced feature, quinine will cure.

Thus one of the important subjects of our study will be the *analysis* of disease. We purpose dividing it into its separate parts, and studying their relation to one another, and we purpose to make this study point out the remedy or remedies as far as this is possible. It would be well to have a preparatory study of the elements of disease, studying them separately, before studying them together. The student should therefore read carefully the *Principles of Medicine*. A rational practice of medicine can only be based upon such knowledge, and it will be constantly referred to as we progress with our subject.

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CHAPTER I.

ELEMENTS OF DIAGNOSIS.

To determine disease, its character and location, it is necessary that we have constantly in our mind a correct standard of structural and functional health. It is commonly remarked, that a knowledge of anatomy and physiology will give this standard, and he who has attained this knowledge in his preliminary education is able to make this comparison. Whilst admitting the importance of this technical knowledge, I claim that it is not sufficient for our purpose. That knowledge only which has been verified by the person, and by such series of observations as have educated the senses, will give skill in diagnosis.

No man, however talented, or how great his book-knowledge, can afford to omit this part of his education. It requires time, and a definite purpose, but as the subjects of observation are healthy people, of all ages and conditions of life, that we are constantly meeting with, this practical knowledge is readily obtained.

We wish to recognize every phase of life, and there is nothing so trivial in vital manifestations, that it does not deserve our attention. Some things that can not be easily expressed in language, we sometimes find of greatest importance in determining the variation from health—as in the expression of the countenance, or the entire body. I name these facts principally to call attention to the necessity of this careful study by observation, rather than to point out any particular method.

Those points that we can systematize, and which furnish the elements of diagnosis, relate to important or vital functions. If these are regularly and well performed, we say there is

health; if they are irregular, exalted, or depressed, that there is disease.

We measure disease by the standard of excess, defect, and perversion.* Knowing the healthy function, and being able to recognize its manifestation, we find that this standard is readily applied. And determining the character of the variation, the correct therapeutics is at once suggested.

THE CONDITION OF HEALTH.

If I were describing the condition of health to one who had not observed for himself, I should say:

1st. That the general expression of the body would be of *vigor*, and the countenance would indicate that existence was pleasurable—*i. e.*, an absence of painful or unpleasant sensations.

2d. The temperature should be maintained at the standard of 98.4°.

3d. The circulation of blood should be uniform and regular; showing good aeration by its bright redness at those parts where it is freely distributed to the surface. The pulse ranging from 60 to 70 beats per minute, rarely falling below or above this standard.

4th. The tongue should be clean, and of a uniform pale, rose-red color. The appetite good, the food taken with pleasure; digestion attended with a feeling of comfort; and the bowels moving freely at regular intervals.

5th. The soft structures should be full, the different tissues well outlined, and giving to the touch that degree of hardness and elasticity that we describe as *tonicity*.

6th. The skin should give to the touch a sense of pleasant coolness, moisture, and elasticity; showing good excretion, and the power of removing excess of caloric. The discharge of urine regular, pleasurable, of natural color and specific gravity. And as before remarked, the bowels moving regularly and pleasurably, usually once each day.

7th. The clear eye, the general expression of body and form being smooth and uniform, expressive of pleasure, at least of absence of suffering, will indicate a healthy condition of the nervous system.

*See Principles of Medicine, page 18.

THE CONDITION OF DISEASE.

As before remarked, disease is a deviation from the healthy standard of structure and function. The first is to be determined by our anatomical knowledge; the second by observing a change from the healthy standard, especially in the points above noted.

We will briefly examine these deviations in the order above named:

1st. DECUBITUS AND EXPRESSION.—The position of the patient in bed, is to some extent an evidence of the severity of disease. If the person is well nourished, and yet there is that degree of relaxation that renders the body expressionless, we would conclude—either that there was an impairment of innervation from the cerebro-spinal system, or, that there was that arrest of innervation from the sympathetic system of nerves, that gave rise to congestion, imperfect aeration of blood, and general prostration of vital function.

The expression will also be the index of pain, as well as of excitation of the nerve centers, and of feeble innervation. It tells of continuous expenditure of vital power, without the necessary rest for recuperation, until the sharp lines of the face become the index of the patient's danger. It also tells of the gradual extinction of life through the nervous system, in the expressionless face, which at last ceases to reflect a mind.

We are accustomed to say that the disposition to lie upon the back, indicates the loss of vitality. As a general rule, in acute disease, we will find that so long as a sick person changes his position, there is no danger; but as soon as he inclines to lie upon the back all the time, it shows want of vital power.

2d. TEMPERATURE.—As was named in proposition second, a temperature of 98° to 98.7°, is absolutely essential to health. Whenever we find a variation from this in either direction, there is disease, and conversely, whenever we find disease there will be such variation in the temperature. As a general rule, this variation in temperature is in exact proportion to the diseased action. Thus it becomes an important means of diagnosis, and also of prognosis.

Means of Determining the Temperature.—The application of the hand to determine the temperature of the body has been recommended and followed since the days of Hippocrates. That master insisted upon the importance of such examination, and the use of those means that would elevate the temperature when depressed, and lower it when exalted.

Some physicians would attain considerable skill by long practice, especially when associated with great natural tactile sensibility, and would make it an important element in diagnosis. Still even these were liable to frequent errors, and to the majority it was of but little if any use. For instance, it was thought that in the cold stage of an intermittent, the temperature was depressed, yet the thermometer showed it to be increased.

The Body Thermometer.—The thermometer is presented to us as a new means of diagnosis, but as far back as 1754, one hundred and fourteen years ago, Antonius De Haen, the first clinical teacher of medicine at Vienna, insisted upon its use to determine the temperature of the body, rather than to judge by the hand. But though De Haen showed that it was the only correct index of heat, and seemingly indispensable in diagnosis, if it was desirable to determine the temperature, he was not able to convince the profession that this was desirable, and its use lapsed with his death.

The use of the thermometer has been revived within the last thirty years, and is now exciting much attention, and is employed by many as a most valued means of diagnosis and prognosis. It is valued now, because we appreciate the fact that the vital processes can only be performed in perfection at the normal temperature of 98°, and that just in proportion as it varies from this, either above or below, they are changed or arrested. Indeed, it would seem, that heat at this degree, was the most essential condition of life, and that if there was a variation from it, those means which would restore the thermal equilibrium are the most direct and important.

The difficulty in the way of using the thermometer to determine the temperature of the body, seemed to be in a want of sensitiveness, and precision in marking fractions of a degree. This has been overcome by employing a large quantity of mercury in the bulb, and a short stem graduated from 80° to 115°. By thus increasing the quantity of mercury, the degree, as

marked upon the scale, was so lengthened that it could readily be divided into fourths, and even eighths or tenths. And the sensitiveness to heat was in direct proportion to the increased length of a degree as marked upon the scale.

A *registering* thermometer is one in which a small portion of mercury is detached from the main column in the stem of the instrument. This detached portion is elevated by the expansion of the mercury below, which ascends in the stem below it, and thus marks the degree of heat. But it is not influenced by the descent of the main column, but remains in its place, thus acting as a register. In using this thermometer, the detached portion of mercury is lowered in the stem below the register by giving it three or four gentle taps with the hand from below.

As the instruments require great accuracy in manufacture, they exceed in price the ordinary thermometer. Yet very good instruments may be purchased from $2.50 to $5.00; the self-registering, in morocco case, at $3.50, I would recommend as preferable.

It may be remarked, that we employ thermometers graduated to Fahrenheit's scale, but some of the cheaper German instruments have the scale of Reaumur or Centigrade.

Applying the Thermometer.—The majority of writers direct that the thermometer be applied in the axillæ, as it is there completely enclosed and surrounded by the soft parts. When it is convenient, as in some acute diseases, the person being in bed, I think the axillæ the best, yet there are many cases when we should like to test the temperature, that it would be very inconvenient for the person to unfasten the clothes to reach this part. Women, especially, will object to this method of examination.

To suit these cases, I apply the bulb of the thermometer under the tongue, having the patient close the mouth. This is much more convenient, and so far as my experience extends, just as reliable.

The thermometer should be retained in its place from three to five minutes, as it requires this length of time for the full influence of the body's heat. It is well also, in some cases, to watch the register to see how *rapidly* the mercury rises, as there is much difference in this in different cases, and it also becomes an element in diagnosis.

Ranges of Temperature in Health.—The standard temperature of the healthy body is 98·5°, and is subject to a slight variation during the day of about 0.820°. The maximum temperature is in the early morning; it fluctuates and gradually decreases during the day, and is lowest at midnight.

"The observations of Drs. Edwards and Davy have shown that the amount of animal heat may be considerably altered by a number of collateral circumstances. But the great distinction between these alterations of temperature in health, and those which are the result of disease is, that these variations are generally temporary, and within narrow limits—amounting to mere fractions of a degree—rarely more than 1.8° Fahr. to 3.6° Fahr. whereas those which are due to disease are persistent so long as the disease exists.

"The following are the collateral circumstances which mainly influence animal heat in our daily life, and which require to be remembered in order that erroneous conclusions may not be drawn: 1. *Active exercise* [not carried to the extent of exhausting fatigue] raises the temperature proportionally to the degree of muscular exertion made. 2. *Exposure to cold* without exercise lowers the temperature. 3. Sustained mental exertion reduces temperature about half a degree. 4. The amount of heat is also reduced by a *full meal* and the use of alcohol; but it rises again as digestion advances. 5. There are diurnal fluctuations capable of being thus determined. 6. The temperature of the body rises with the temperature of the air; and sudden transitions from a cold to a hot climate induce a feverish state marked by increase of temperature on bodily exertion. 7. The average temperature within the *tropics* is nearly 1° Fahr. higher than in temperate regions. 8. The temperature is more readily and rapidly affected—more sensitive, so to speak—than either the pulse or the respiration; and this is especially the case in disease." (Aitken.)

Ranges of Temperature in Disease.—We have to study both an *increase* and a *decrease* in the temperature of the body, the first being of most common occurrence, and having the greatest range. Thus whilst a decrease of but one degree, if maintained for a considerable time, will result in death, an increase of four to six degrees may be maintained for a month with safety to life.

The increase of temperature is usually proportionate to the frequency of the pulse, *one degree corresponding to an increase of ten beats per minute.* Thus :—

With a temperature of	98°	.....	pulse of	60
"	"	"	99°	.....	" " 70
"	"	"	100°	.....	" " 80
"	"	"	101°	.....	" " 90
"	"	"	102°	.....	" " 100
"	"	"	103°	.....	" " 110
"	"	"	104°	.....	" " 120
"	"	"	105°	.....	" " 130
"	"	"	106°	.....	" " 140

This table is for adult males of good development, and will not apply to those of feeble constitution, of sedentary habits, or of a nervous temperament. In such, with a normal temperature of 98°, the pulse would be 70 or 80, and the increased frequency to each degree would be but six or eight, until the 103° was passed.

In chronic disease we also find an increase of temperature, and the thermometer becomes almost as certain a means of diagnosis and prognosis, as in febrile and inflammatory affections. Thus, for instance, in phthisis pulmonalis, we find a permanent increase of temperature to 99° and 100°, in the first stages, increasing to 101° and 102°, as the disease progresses. This increase is so uniform that it will furnish the best evidence of the nature of the disease in its earliest stage. The frequency of the pulse corresponds to the increase of temperature. Breaking down of the tubercles is announced by a marked increase of temperature, corresponding to the destruction of lung tissue, and the danger to life.

In acute fevers and inflammations, we find the temperature increasing in the ratio of the severity of the disease. It does not, however, remain uniformly the same throughout the twenty-four hours, but presents a marked morning decline and evening elevation. This is very distinct, even in continued fevers, which we are accustomed to think of as being uniform in all their phenomena. This fluctuation is rarely less than one degree, and is frequently two degrees or more.

The value of the thermometer, as a means of diagnosis, is thus estimated by Dr. Aitken :

"In the course of many diseases, whose diagnosis has been accurately determined, if the temperature departs from its nor-

mal or typical range, the thermometer will furnish the best and the earliest indication of any untoward event, such as the additional development of disease, or other visceral complications, in its course.

"When once the typical range of temperature (*normal*, as it were, of the particular disease) is determined, a basis is laid for appreciating irregularities or complications in its course in particular cases. For example, a patient exhibits symptoms of fever of the typhoid type, but during the progress of the first week his temperature becomes normal, for however short a space of time—the occurrence of this event proves that the fever is not what it was supposed to be. Again, a patient may suffer from all the general symptoms of incipient pneumonia; but there still is a doubt as to whether infarction of the lung has taken place. The sputa being suppressed, or not procurable, does not assist the diagnosis. If, however, the temperature is found to be normal, it is certain that no croupous exudation has taken place in the lung, and that there is no pneumonia. Again, if a tuberculous patient has a sudden attack of hæmoptysis, and if the temperature of his body is normal during and subsequent to the attack, no reactive pneumonia, nor any exacerbation of the tuberculous exudation need be expected. This is a new field open for investigation in cases of phthisis.

"Again: In all cases of convalescence, so long as the defervescence proceeds regularly, as measured by the temperature, no relapses need be feared; on the other hand, delayed defervescence in pneumonia, the persistence of a high evening temperature in typhus or typhoid fever, or the exanthemata, and the incomplete attainment of normal temperature in convalescence, are signs of great significance. They indicate incomplete recovery, supervention of other diseases, unfavorable changes in the products of disease, or the continuance of other sources of disturbance requiring to be carefully examined into. The onset of even a slight elevation of temperature during convalescence is a warning to exercise careful watching over the patient, and especially for the maintenance of a due control over his diet and actions."

The Influence of Treatment on the Temperature.—By reference to table on page 18, it will be noticed that there is a constant relation between the frequency of the pulse and the temperature; that with a range of temperature of 103° to 105°, we find

a pulse ranging from 110-115 to 130-140. It is evident, therefore, that if we have any means that will control the circulation—lessening the frequency of the pulse—it will also lower the temperature.

The question then arises, if a treatment will thus control the pulse and temperature, may it not change a severe and dangerous case into a mild one without danger? We answer this question in the affirmative, not as a theory, but from observations on many cases of disease.

I think I am justified in stating, as an axiom, that just in the ratio that the circulation is thus controlled, and the temperature reduced, the fever is rendered mild.

I wish it distinctly understood, however, that I refer only to those influences which can be continued for some days, and not to those which endure but a few hours. The use of large doses of veratrum will bring down the pulse from 120 to 60 or 70 beats per minute, in six to ten hours, and with a corresponding reduction in temperature; but it is not possible to continue this influence, as in a few hours the stomach becomes irritable and rejects it, or the depression of the sympathetic nervous system is such as to peril life.

But if the remedy is given in doses of half to one drop, sedation is slowly produced, the stomach receives it kindly, and instead of depression of the vegetative functions, the remedy acts as a stimulant to them.

But is it possible to arrest a fever before it has run its course? I am satisfied that this question may also be answered in the affirmative. Not that every case can be shortened, for in some the local lesion of Peyer's glands proves an insurmountable obstacle; but many can be arrested from the seventh to the ninth day, more by the fourteenth, and in nearly all the disease can be restricted to twenty-one days.

A fever terminates naturally—by a decrease in the frequency of the pulse, a diminution of the temperature, and the re-establishment of secretion, by which the cause of the disease is removed. If, then, by the use of sedatives, we lessen the frequency of the pulse, and obtain an equal and uniform circulation, with a corresponding decline in temperature, we find it easy to establish secretion from the skin, kidneys and bowels, by the usual means. And in a majority of cases these proces-

ses may be sustained by the use of nutritious food, and the use of small doses of the bitter tonics.

But the question arises, does the temperature bear the same relation in chronic disease, and will treatment influencing the temperature have a like curative influence? I answer the question in the affirmative, and adduce as an example phthisis pulmonalis, one of the most intractable diseases we have to contend with.

In this, so long as the increased temperature is maintained, the disease progresses; and very frequently its rapidity is in exact ratio to this. Diminish the temperature, and the disease progresses more slowly. Reduce it to 98.5°, and maintain it at this, and the patient recovers.

3d. The Circulation of Blood.—As the circulation of the blood is one of the most important vital processes, not only for the maintenance of its own health, but also with reference to other processes, which depend upon it, we will find that change from the normal standard is an element in all diseases.

It may be stated as a general rule, that the gravity of disease will depend more on such change, than upon any other functional lesion. Whether the circulation is too slow or too fast, or the blood is not equally distributed, we find a proportionate arrest of all the vegetative functions. So true is this, that in every disease we regard the lesion of circulation as standing first, with reference to our therapeutics. If we could study the lesions of the circulation by the common standard of excess, defect, and perversion, diagnosis would not be difficult. But we are met at the threshold by the fact that frequency of pulse is more usually a result of debility than of strength, the circulation being defective rather than in excess.

A real *excess* gives a full and frequent pulse, but without hardness, as we observe in febricula, or some of the minor inflammations from cold. In such case we have the evidences of freedom in the passage of blood, and there is neither the deterioration of this fluid, nor arrest of function, that we observe in other cases.

A *full, bounding* pulse is evidence of an excess in the circulation, but also of an unnatural excitation of the nervous system controlling the heart. We meet with it in the first days of a sthenic fever, and sometimes in sthenic inflammations.

In both of these cases Veratrum may be given in large doses with success. For, there is little or no danger from too great depression, as there is where frequency of beat is the result of want of power. In these cases, also, the indirect sedation from the use of emetics, the vapor bath, or cathartics, is permanently beneficial.

A *full, hard* pulse indicates excess of power (action), with obstruction to the free flow of blood. It is met with in active inflammations, and in the early days of febrile diseases in robust persons, especially in remittent fevers during the exacerbation. But wherever met with the fullness may be taken as the index of heart-power, and the hardness of obstruction in the capillaries.

The remedial action here is two-fold. It must lessen the action of the heart, and must also remove obstruction to the free flow of blood. This influence can be obtained from the judicious use of nauseants; from the stronger diaphoretic means, as the spirit-vapor bath, or the wet-sheet pack; and occasionally from free catharsis, especially *emeto*-catharsis. It may also be obtained from the use of sedatives in large doses, especially of Veratrum, Gelseminum, rarely of Digitalis, and never of Aconite. This action, however, is not safe, for if the remedy only influences the heart, lessening its power to circulate the blood, and does not remove the capillary obstruction, the action is injurious, if it does not lead to a fatal termination.

In the use of the sedatives in this case, I prefer small doses, which, influencing the circulation through the sympathetic, places the entire system of vessels in good condition for the circulation of blood, and removes the excitation of the heart without enfeebling it.

The *hard* pulse indicates obstruction to the circulation, without excess of power on the part of the heart. Probably it would be better expressed by saying, that it indicated an unnatural excitation of the sympathetic nervous system. The *smallness* of the pulse will indicate the want of heart-power; if it has come up suddenly we may attribute this want of power to shock, as in the acute inflammation of serous membranes; if the accession is slow, it will depend upon a real want of power.

When this condition of the circulation comes up suddenly, I prefer Veratrum in large doses, but when slowly produced, then Veratrum in small doses.

The *frequent* pulse, not full, evidences debility of the heart—a want of power to circulate the blood; hence frequency of beat in proportion to the want of contractile power.

We have seen above that capillary obstruction gives *hardness*, but only in those cases where the arterial system maintains its tonicity. Capillary obstruction will give frequency, as it imposes on the heart an extra labor, and requires increased frequency of action to compensate for the want of power in single contractions.

This condition of the circulation requires small, or stimulant doses of the sedatives. I think there can be no doubt but that they do improve the innervation of the heart, giving increased power of contraction. Necessarily if frequency is dependent upon want of power, any means that will increase the power, will diminish the frequency. Since 1859, I have taught that Veratrum and Aconite in small doses were *cardiac stimulants*. This has been admitted of Digitalis, and within the past year it has been conceded of Aconite by some of the most prominent writers on medicine.

The *soft and easily compressed pulse* indicates want of tone in the blood vessels. In protracted diseases, this is probably dependent upon imperfect nutrition, but early in acute disease, upon impairment of the sympathetic nervous system.

Frequency in this case is the measure of feebleness upon the part of the heart.*

Aconite is the preferable remedy in this case, and we employ it as a cardiac and arterial stimulant. The general use of tonics, restoratives, and nutritious food, are also essentials of a good treatment.

A difference in time between the sounds of the heart and the radial pulse is an evidence of debility, unless there is heart disease or aneurism.

An *oppressed* pulse, showing want of freedom in the movement of the blood, whether it is frequent or slow, full, hard or soft, is the evidence of congestion. We do not have to depend alone upon this, however, for there are the additional evidences from local and general symptoms.

The Action of Sedatives.—We may properly conclude this short description of the evidences of disease from the circulation by a brief account of those remedies called sedatives. I do this

*See Principles of Medicine, page 217.

because the matter can not be found in any of the works on Materia Medica.

There have been very grave errors held and taught with reference to these remedies, as indeed there has with nearly or quite all of the Materia Medica. And it is a thousand times easier to teach such error, than to overcome it and replace it with the truth.

One principal error is, that the action of the sedative should be speedy, like a cathartic or emetic, and like impressive on the beholder. This is a very serious mistake, for it either leads to the administration of large and poisonous doses, or the physician loses faith in the efficacy of sedative medication, and discards this whole class of remedies.

This error had its growth principally in the early use of Veratrum Viride in the treatment of acute inflammatory diseases, in which large doses were used to advantage. Thus an acute inflammation of the lungs or the bronchiæ, or a brief sthenic fever from cold yield readily to tincture of Veratrum in doses of ten or fifteen drops. The influence in this case is that of powerful emesis or catharsis, bleeding to syncope, or the nausea of tartrate of antimony.

Necessarily such an action would prove injurious in zymotic diseases, and in inflammations of an asthenic character. The vital activities are here so low that they will not bear with safety so great a depressant, and I am satisfied that much harm has resulted from this use.

The action of these remedies, like many others, is double; a medicinal action (it had better be called a curative action) in small doses, a poisonous action in large doses. It is the last action, unfortunately, that too many physicians invoke from the use of medicines.

In both cases the action is upon the sympathetic system of nerves, and not only influences the circulation, but all the processes that are presided over by this portion of the nervous system. Thus secretion, nutr tion, and waste of tissue, are directly influenced.

The influence of large doses (poisonous) is to depress this nervous system, and hence every process directed by it is impaired. He who has only seen the diminished frequency of the pulse as the evidence of this action has seen but a part. There are cases in which the result is increased frequency

until finally the heart's action ceases. This influence, but rarely observed from Veratrum, is not uncommon from Aconite, and from Gelseminum and Digitalis. But in the case of Veratrum, the slowness of the pulse corresponds with an impairment of the circulation, which, though not so marked in sthenic disease, is a prominent feature in asthenic.

The medicinal action of all of these remedies improves and gives freedom to the circulation, at the same time that it lessens its frequency, and aids in re-establishing secretion, nutrition and all other vital functions. I contend that this is accomplished by relieving the sympathetic nervous system from the influence of the cause of disease, and by increasing its power. In other words, that the influence of sedatives is stimulant rather than depressant; that they increase the power to live rather than diminish it.

Necessarily such an action is slow, as it is certainly curative. He who expects, in severe diseases, to produce sedation in a few hours, or a day, had better continue the use of cathartics, emetics, and other means of indirect sedation. They are only used to advantage by those who are willing to wait, and associate the gradual sedation with the like gradual giving way of disease.

Using them in this way, the practice of medicine becomes a real pleasure, and has a success not otherwise attainable. I believe I can say without boasting, that I have had as large a general practice in the past ten years as other physicians, and a much more successful practice than any of my acquaintance, and I attribute my success to the discarding of the old antiphlogistic practice and remedies, and the employment of these and other specific medicines.

I think there is no mistake but that *specific medication* will be the practice of the future, and he who wishes to obtain the greatest success, will turn his investigations in this direction.

The Differential Therapeutics of Veratrum and Aconite. — To determine which of a class of remedies is applicable in a given case, is the most difficult task of the physician, and any information in this respect is of much value. I doubt whether any one using the two remedies named, would be willing to risk giving this estimate. Many may have an empirical intuition in regard to it, but most could venture nothing but a guess.

In general terms, Veratrum is the remedy in sthenia, Aconite in asthenia, but there are too many exceptions to this to make it a safe rule for our guidance.

Veratrum is the remedy when there is a frequent but free circulation. It is also the remedy when there is an active capillary circulation, both in fever and inflammation. A full and bounding pulse, a full and hard pulse, and a corded or wiry pulse if associated with inflammation of serous tissues, call for this remedy.

Aconite is the remedy when there is difficulty in the capillary circulation, a dilatation and want of tonicity of these vessels, both in fever and inflammation.

It is the remedy for the frequent, small pulse, the hard and wiry pulse (except in the cases above named), the frequent, open and easily compressed pulse, the rebounding pulse, the irregular pulse, and indeed wherever there is the evidence of marked enfeeblement of the circulation.

It is the sedative I associate with Belladonna in congestion, especially of the nerve centers, and to relieve coma. Whilst I would use Veratrum with Gelseminum in determination of blood to the brain, and in active delirium.

Veratrum acts more efficiently upon the excretory organs; indeed I believe it to be one of the most certain remedies we have to increase secretion. Hence it is employed with great advantage for those purposes usually called alterative.

Aconite controls excessive activity of the excretory organs, whether of the bowels, kidneys or skin. Thus it is our most certain remedy in the summer complaint of children, associated with Belladonna in diabetes insipidus, with the bitter tonics and Strychnia in phosphuria and oxaluria, and with the mineral acids in night sweats.

4th. THE TONGUE.—*Let me see your tongue?* says the physician when he sits down by the bedside to examine the patient, and from the unanimity in making this examination, we would regard it as one of the important means of diagnosis. True, we find but few who can give an intelligible account of what they examine the tongue for, or explain the relation between its appearance and certain pathological conditions. Yet we must conclude, that after a time, experience will have made

such impress on the mind, that it will almost involuntarily become an element in diagnosis.

It is difficult, however, for the beginner in medicine to learn more from his text-books, than that the furred tongue indicates digestive derangement, and under the old *regime*, that it demanded cathartics.

We may classify the appearances of the tongue, as having reference, first, to the condition of the blood; and second, as indicating the condition of the digestive apparatus. The indications from the appearance of the tongue are very positive, so that it matters little what may be the character of the general disease and its nosological classification, these have always the same signification, and demand the same remedies.

The *broad* and *pallid* tongue may be taken as an indication of a want of alkaline salts. The indication is stronger if the coating of the tongue is moist, white and pasty. Three conditions are here observed: fullness or tumidity, with relaxation; pallidity or want of color, not only of the tongue but of all mucous structures; a peculiar coating—moist, pasty-white, or yellowish-white.

The first may be said to relate principally to innervation from the sympathetic, which is deficient, and which gives sluggishness of circulation, impairment of function in the digestive tract, and indeed to some extent of every part supplied from this system of nerves. This is met by the use of Aconite and Belladonna, followed by Quinia, Strychnia, Iron, Phosphorus, and animal food.

Pallidity, or want of color, has reference to the deficiency of alkaline salts in the blood. In this case the administration of salts of soda, or in some cases of potassa, restores the due proportion of salts, rendering the blood a better vehicle for oxygen, and thus increasing its color.

Pallidity of mucous membranes is associated with enfeebled circulation, as we have seen above, and this necessarily causes impairment of all functions. The salt of soda, therefore, not only gives increased oxygenation and waste, but improved circulation, secretion and excretion, and nutrition.

The *white*, or *yellowish-white*, *pasty* coat has reference especially to the condition of the gastro-intestinal mucous membrane. Indicating a want of functional activity, and enfeebled circula-

tion, and increased mucous secretion. Whilst in moderate extent we might expect to meet it with the common salts of soda, or the alkaline diuretics, in the more marked cases we would employ Sulphite of Soda, and when very prominent, an emetic.

Where there is a *heavy coat* on the *base* of the tongue, usually of a *yellowish-white* color, it indicates a want of functional power in the stomach, with accumu'ations. These accumulations may be of undigested food, or of mucus, and in the severer cases they undergo decomposition more or less rapidly. An emetic is the speediest means of relief; mild cathartics may be employed for the same purpose, when not contraindicated; or we may depend upon the antiseptic salts to prevent decomposition, until the material is removed by the bowels.

The tongue *uniformly coated yellowish*, is about the best evidence of intestinal torpor, and may be taken as an indication for the judicious employment of such remedies as Podophyllin.

The *elongated* and *pointed* tongue indicates irritation of the stomach, the degree of irritation being determined by the *redness* of its tip and edges. It tells of excitation of the nerves, determination of blood, and consequent arrest of function.

Whenever and wherever met with, it demands a first consideration, and its relief takes precedence of all other means; for with this condition of the stomach, we could not expect that remedies would be kindly received and absorbed, or that food could be taken or digested.

The *deep-red*, *slick* tongue, showing through a film as it were of fibrin, is the type of irritable stomach, with depravation of the blood. It is that condition in which all ingesta is a source of discomfort; in which there is a complete arrest of digestive power, and even of absorption. It is also attended, many times, with an irritability of the sympathetic nervous system, which intensifies all the other symptoms of disease, and rapidly expends the vital power.

The *deep-red* of tongue or mucous membranes, refers to an excess of the alkaline salts in the blood. The indication is absolute, whenever met with, regardless of the nature, name or stage of the disease. There is but one chance for error, and that is the rare case in which one salt, as of soda, replaces another in excess, as of potassa; in which case, the administration of an alkali might be beneficial.

The remedy in this case is an *acid*, which we use as a restorative (as food) rather than as a medicine. The rule is, to continue its use until the indication is gone.

The *dirty-white* fur indicates depravation of the blood, as we see in some cases of typhoid fever, and other diseases which assume a typhoid character.

The *brown* coat, fur or sordes, is also evidence of depravation of the blood. As the color deepens, we may regard the septic process advancing, until when deep-brown, or nearly black, *necræmia*, or death of the blood, is far advanced.

The *dirty-white* fur we have with the broad pallid tongue, the mouth being moist. The brown coat, we associate with the *deep-red* tongue, and usually with dryness.

The *clean*, *slick* tongue of *deep-red* color, that is met with in typhoid and typhus fever, and in the advanced stages of some other diseases, is also evidence of depravation or sepsis of the blood.

The *white-coated* tongue that we observe in acute inflammation and fever, in which the coat seems to be almost a part of the tongue (not a fur), relates to the inflammatory condition of the blood. As a general rule, it may be taken as the index of such excitement. In surgical diseases, it is associated with free exudation of lymph, which, however, is not formed into tissue, but into pus.

We may sum up the important parts of our subject as follows:

1st. The elongated and pointed tongue, with reddened tip and edges, indicates irritation of the stomach.

2d. The heavily furred tongue at base, indicates morbid accumulations in the stomach.

3d. The tongue uniformly coated with a *yellowish* fur, indicates torpor of the intestinal canal.

4th. The pallid tongue and mucous membranes, with white, pasty-fur, indicates acidity of the blood and demands a salt or soda.

5th. The deep-red color of tongue or mucous membranes, indicates alkalinity, and demands the employment of acids.

6th. The dirty fur, as well as the brown fur, and the clean, slick tongue, indicates deterioration of the blood.

7th. The white coat indicates an inflammatory or sthenic condition.

5th. THE EXCRETIONS.—To determine the condition of the excretory organs is one of the most important elements in diagnosis. Waste of tissue is as important to life as its renewal, and the function of excretion by way of the skin, kidneys and bowels, through which this waste is carried out, is indispensable. We will find that lesions of excretion form a part of all diseases, and that our means of cure look to a restoration of these functions.*

The Skin.—The skin is not only an apparatus for removing nitrogenized waste, but it is also the organ through which the temperature of the body is regulated. It has, therefore, a double importance and demands careful study.

The sensation of *heat* alone refers to an increased rapidity in the circulation of blood and oxygenation. It is met with in the febricula especially, and in the minor inflammations from cold.

The sensation of *heat* with *dryness*, refers to arrest of secretion and increased temperature from want of cutaneous evaporation. The degree of heat and dryness determines the amount of arrest of function, and usually corresponds with the lesion of circulation.

Pungent heat, that unnatural sensation, like we would experience by applying the hand upon the skin where a mustard plaster had been used, evidences deterioration of the blood.

The soft, doughy sensation given to the hand, evidences enfeebled circulation and want of tonicity.

Coldness of the surface is met with in chill, and shows want of circulation to the surface as well as want of power through the heart. The feeling of coldness to the patient may be experienced from slight impairment of the cutaneous circulation, depending upon the cutaneous nerves, and is to be distinguished from a real diminution of temperature.

Coldness of parts distant from the heart, and those in which blood is not distributed freely, shows want of power in the circulatory system. In grave diseases, coldness of the toes, of the knees, and at an advanced stage, of the ears and tip of the nose, is regarded as indicative of grave lesion.

The secretion from the skin has an acid reaction, which may be readily determined by litmus paper. In some diseases, as in rheumatism, this acidity is remarkably increased, as we can frequently determine by the sour smell. In others we find that

*See Principles of Medicine, pp. 116 to 152.

the secretion is neutral or occasionally alkaline. The appropriate remedies at once suggest themselves.

Sometimes there is an unpleasant odor (not dependent upon want of cleanliness), indicating vicarious function for the kidneys and bowels. Remedies to increase these excretions will prove the best treatment.

Urine.—In the ordinary diseases that we meet with in practice, the examination of urine has reference to quantity, specific gravity, and to some extent, to its constituents.

The function of the kidneys is twofold: to remove the principal part of the nitrogenized waste, and to remove superfluous water, so as "to keep the pressure within the vessels at a uniform standard." The quantity of solids will vary therefore with the waste of tissue; and the water will vary with the amount of fluid ingesta, the amount formed in the body, and the amount removed by the skin. This relation between the skin and kidneys should be especially noted, for if secretion is free from the skin, the quantity of urine is diminished, and *vice versa;* this does not, however, affect the solids.

The average amount of urine passed by the healthy adult in twenty-four hours will range from 30 ounces in the summer to 40 ounces in the winter. The average specific gravity will be 1025 in summer, and 1015 in winter.

The healthy urine gives an acid reaction to litmus, but this varies from slight causes and at different periods of the day; as Dr. Bence Jones has shown, "increasing and decreasing inversely with the acidity of the stomach."*

The ordinary examination in acute disease has reference to the quantity excreted, to its specific gravity, and to a limited extent, to the solid constituents. We are interested in knowing, first, that the secretion is sufficient to free the system from the nitrogenized solids, which if retained in small degree would prove a source of irritation, and if in considerable quantity, would produce coma. Some are interested, secondly, in determining by the waste, the character of morbid action in different tissues.

Determining the quantity of urine passed in twenty-four hours, and testing its specific gravity with the *urinometer*, we can readily calculate the amount of solids. It will be recollected that in most acute disease, though there is excess of heat,

* See Principles of Medicine, p. 121.

it does not depend upon increased oxygenation and waste, but upon insufficient escape by the skin, hence we are not to expect as great an amount of solids as in health.

The *color* of the urine has long been regarded as a valuable source of information. In regard to this, it will be well to recollect that all urine that is scanty and of high specific gravity will necessarily be high colored.

The tints of color are thus described by Golding Bird:

COLORS.	CAUSE OF COLOR.	CHEMICAL AND PHYSICAL CHARACTERS.	PATHOLOGICAL INDICATIONS.
Red. A.	Purpurine	Nitric Acid produces a deposit of uric acid almost immediately. — No change by heat. — Alcohol digested on the extract acquires a fine crimson color.—Density moderate.	Portal congestion; it is generally connected with organic mischief of the liver or spleen.
B.	Blood.	Becomes turbid by heat and nitric acid — its color changing to brown.—The microscope discovers floating blood discs.	Hemorrhage in some part of the urinary passages.
Brown. C.	Concentration.	Nitric acid precipitates uric acid readily.—Density high The addition of hydrochloric acid to some of the urine previously warmed, produces a crimson color.	Fever.
D.	Blood.	See B. — coagulation by heat, and nitric acid less marked.	Obstruction to the escape of bile from the liver or gall bladder, and the presence of some or all the elements of bile in the circulation.
E.	Bile.	A drop of nitric acid allowed to fall in the center of a thin layer of urine on a white plate, produces a transient play of colors, in which green and pink predominate.	
Greenish brown. F.	Blood.	See B; occurring in alkaline urine.	
G.	Bile.	See E.; occurring in very acid urine.	
Grass-green. H.	Excess of Sulphur.	Unchanged by heat or nitric acid.	Presence of cystine.

In the examination of urine I have always followed Golding Bird, and I give his method as the clearest that I have seen.

"*On the Clinical Examination of the Urine.*—The following observations may be of service to the practitioner, as a guide to his proceedings in the superficial examination of the urine, the most important part of which can be readily performed in a few moments in the sick room. Premising that

the urine presented for inspection is either an average specimen of that passed in the preceding twenty-four hours, or at least that resulting from the first act of emission after a night's rest, unless the urine secreted at other times of the day be specially required.

"*Urine without any visible deposit, or decanted from the sediment.*—A piece of litmus paper should be immersed in the urine, which, if acid, will change the blue color of the paper to red. Should no change occur, a piece of reddened litmus paper must be dipped in, and if the secretion be alkaline, its blue color will be restored; but if its tint remains unaltered, the urine is neutral.

"Some of the urine should then be heated in a polished metallic spoon over a candle, or, what is preferable, in a test-tube over a spirit lamp, and if a white deposit occurs, albumen or an excess of the earthy phosphates is present; the former, if a drop of nitric acid does not redissolve the deposit, the latter, if it does.

"If the urine be very highly colored, and not rendered opaque by boiling, the coloring matters of bile, or purpurine, are present. To determine which, pour a thin layer of urine on the back of a white plate, and allow a few drops of nitric acid to fall in the centre: an immediate and rapidly ending play of colors, from bluish-green to red, will be observed if bile, but no such change will be observed if purpurine alone exists. Should the highly colored urine alter in color or transparency by heat, the presence of blood must be suspected.

"If the addition of nitric acid to deep red urine, unaffected by heat, produces a brown deposit, an excess of uric acid exists. If a specimen of urine be pale, immerse the gravimeter, and if the specific gravity be below 1.012, there is considerable excess of water, but if above 1.025, the presence of sugar, or a superabundance of urea is indicated. To determine the existence of either of these conditions, place a few drops of the urine in a watch-glass, add an equal quantity of nitric acid, and allow the glass to float on some cold water; crystals of nitrate of urea will appear in two or three minutes, if the latter exists in excess. Should this change not occur, the urine must be examined specially for sugar, which, it must be remembered, may exist in small quantities, without raising the specific gravity of the fluid. For this purpose boil a small portion with an

equal bulk of liquor potassæ in a test-tube, and the development of a brown color will at once afford evidence of the almost certain existence of sugar. An excess of coloring matter, rich in carbon, should always be sought after, on account of its pathological importance. This is readily done by boiling some urine in a tube, and, whilst hot, adding a few drops of hydrochloric acid. If an average proportion of the pigment exist, a faint red or lilac color will be produced; but if an excess is present, it will be indicated by the dark red, or even purple tint assumed by the mixture.

"Should the urine be alkaline, add a drop of nitric acid; if a white deposit occurs, albumen is present; if brisk effervescence follows the addition of the acid, the urea has been converted into carbonate of ammonia.

"*Examination of the Sediment Deposited.*—If the deposit is flocculent, easily diffused on agitation, and scanty, not disappearing on the addition of nitric acid, it is chiefly made up of healthy mucus, epithelial debris, or occasionally, in women, of secretions from the vagina, leucorrhœal discharge, etc.

"If the deposit is ropy and apparently viscid, add a drop of nitric acid; if it wholly or partly dissolves, it is composed of phosphates, if but slightly affected, of mucus. If the deposit falls like a creamy layer to the bottom of the vessel, the supernatant urine being coagulable by heat, it consists of pus.

"Urine sometimes appears opaque, from the presence of a light flocculent matter diffused through it, neither presenting the tenacity of mucus, nor the dense opacity of pus. Although scarcely sufficient in quantity to interfere with the perfect fluidity of the urine, if a little be placed in a test-tube and agitated with an equal bulk of liquor potassæ, the mixture will often become a stiff transparent jelly. This peculiar appearance is demonstrative of the presence of the exudation, or large organic globules formed under the influence of irritation, providing the urine does not coagulate by heat, for should it do so, the existence of minute quantities of pus may be suspected.

"If the deposit is white, it may consist of urate of ammonia, phosphates, or cystine; the first disappears on heating the urine, the second on the addition of a drop of diluted nitric acid, whilst the third dissolves in ammonia, and the urine gen

erally evolves an aromatic odor like the sweetbrier, less frequently being fetid.

"If the deposit be colored, it may consist of red particles of blood, uric acid, or urate of ammonia, stained with purpurine. If the first, the urine becomes opaque by heat; if the second, the deposit is in visible crystals; if the third, the deposit is amorphous, and dissolves on heating the fluid.

"Oxalate, and more rarely oxalurate (?) of lime are often present diffused through urine, without forming a visible deposit: if this be suspected, a drop of the urine examined microscopically will detect the characteristic crystals.

"If the urine be opaque like milk, allowing by repose a cream-like layer to form on the surface, an emulsion of fat with albumen is probably present. Agitate some of the urine with half its bulk of ether in a test-tube, and after resting a few minutes, a yellow ethereal solution of fat will float on the surface of the urine,—a tremulous coagulum of albumen generally forming beneath it.

"Much of the little time required for the investigation thus sketched out, may be saved by remembering the following facts:

"If the deposit be white, and the urine acid, it in the great majority of cases consists of urate of ammonia; but should it not disappear by heat, it is phosphatic.

"If a deposit be of any color inclining to yellow, drab, pink, or red, it is almost sure to be urate of ammonia, unless visibly crystalline, in which case it consists of uric acid.

"The following tables briefly point out the readiest mode for the examination of crystalline deposits, both by chemical tests and by microscopic examination. The latter mode is of course preferable to all others, both for the accuracy and extent of the information it affords, as well as for economy of time.

TABLE FOR DISCOVERING THE NATURE OF URINARY DEPOSITS BY CHEMICAL RE-AGENTS.

1.	Deposit white,	2	
	" colored,	5	
2.	" dissolves by heat,		Urate of ammonia.
	" insoluble by heat,	3	
3.	" soluble in liquor ammoniæ,		Cystine.
	" insoluble in "	4	
4.	" soluble in acetic acid,		Earthy phosphates.
	" insoluble in "		Oxalate & oxalurate of lime.
5.	" visibly crystalline,		Uric acid.
	" amorphous	6	

6.	Deposit pale, readily soluble by heat,	Urates.
	" deeply colored, slowly soluble by heat.....	" stained by purpurine.

TABLE FOR THE MICROSCOPIC EXAMINATION OF URINARY DEPOSITS.

1.	Deposit amorphous,.....	2
	" visibly crystalline,.....	3
2.	" vanishes on the addition of	
	" liquor potassæ.....	Urate of ammonia
	" permanent after the addition of liquor potassæ, ..	Phosphate of lime.
3.	Crystals in well defined octahedra,...	Oxalate of lime,
	" not octahedral,.....	4
4.	" in six-sided tables, soluble in	
	" ammonia, ...	Cystine,
	" not tabular, nor soluble in ammonia,.....	5
5,	" soluble in acetic acid,.....	6
	" insoluble in acetic acid,.....	8
6.	" in prisms or simple pennæ,	Neutral triple phosphate.
	" radiated or foliaceous,.....	7
7.	" soluble in acetic acid with	
	" effervescence, ...	Carbonate of lime,
	" soluble in acetic acid without effervescence	Bibasic-triple phosphate.
8.	" in dumb-bells or radiated, ..	Oxalurate (?) of lime.
	" spherical or colored,.....	
9.	" in lozenges or compound	
	" crystals,...	Uric acid.
	" in spherical crystals,.....	Urate of soda or ammonia.

The Bowels.—Excretion by the bowels does not hold that importance now that it did in olden times. We learn by experiment that of the four to six ounces of feces, giving one to one and a half ounces of solid residue, but about 100 grains are of excrementitious matter.*

The *liver*, which was formerly thought to play so important a part in removing waste of tissue, and excrementitious matter, yields but a few grains of this (four to eleven grains.) It has also been conclusively determined that there are no agents that act upon the liver, increasing its secretion (*cholagogues*); that mercury in any of its forms does not influence it in the least, except when it produces its constitutional effect, or when given to catharsis, it lessens the secretion. All cathartics in cathartic doses diminish the secretion. Even our Podophyllin, which has been regarded as greater than a *Samson* in its influence upon the liver, diminishes the secretion in cathartic doses, and in minute doses lessens the bile solids while it slightly increases the quantity excreted.

If we can learn that the liver performs an important function in digestion and in blood making, furnishing its secretion for

*See Principles of Medicine, page 126.

these purposes, and that it is admirably adapted to these purposes, and rarely the subject of disease, and that we have no medicines that influence it directly, to increase secretion, we will have made an important advance in pathology, and will have much improved our therapeutics. We may classify it with the pancreas, and may expect to influence it only by those remedies that control the circulation, act through the sympathetic nervous system, and influence the processes of blood-making.

Our inquiry in regard to the feces, will have reference, first, to the increase or diminution of the secretion; second, to the condition of the intestinal canal, as an apparatus for digestion; and third, to any abnormal constituent, or marked change in the character of the excretion.

Increase of the feces, in proportion to its extent and duration, causes debility; for histogenetic material, either as food or tissue, is proportionably removed.

Fluid feces, whilst very frequently in *excess* as above, deserve attention more particularly as evidencing such lesion of the intestinal canal, as interferes with digestion and blood making; and also with that due degree of distension of the blood vessels, which is necessary to proper circulation.

Deficiency of feces may depend upon the quality of the food, or upon its quantity; the largest proportion of fecal material being furnished by the debris of food; or it may depend upon an arrest of secretion, in which case we will have the same constitutional evidence that we would have in similar arrest from the skin and kidneys; or it may be dependent upon atony of the intestinal canal, which allows the material to accumulate, without the natural effort at removal.

Simple *constipation* gives rise to derangements of digestion, and the retention of effete material in the bowels occasions a feeling of *malaise* and dullness, with headache and fever, in so far as they are retained in the blood, or re-absorbed.

The *color* of the discharges is sometimes of importance in determining the character of disease. The natural color, like the natural fetor, evidencing a condition of the intestinal canal in which its functions may be properly performed.

The *dark-brown* or almost *black* color of the feces, observed in typhoid disease, arises from the excretion of the coloring

material of the blood; the red globules being broken down rapidly.

The use of iron in any of its forms, and occasionally of sulphur or its salts, will darken the color of the feces. The *dark-green* color of the feces that followed the administration of mercury, and was thought to be bile, was due to the formation of *sulphuret* of mercury.

Greenish discharges are generally dependent upon an increase of acid in the intestinal canal, with irritation and consequent indigestion. It may, in part, be dependent upon the coloring matter of bile, which is thrown off by the feces, in consequence of such irritation.

Clay-colored discharges refer to a general want of secretion; not only of the solitary glands of the intestine, but of the associate viscera. It is an atonic condition, with impaired innervation and circulation.

The natural *odor* of feces seems to be dependent upon a special secretion in the neighborhood of the cæcum. It may be regarded as an evidence of normal activity throughout the entire intestinal tract.

Diminution of the odor is an indication of want of functional activity, as an increase will indicate increased activity.

Fetor refers to decomposition of the intestinal secretions. It varies greatly from local causes, and can not be relied upon as indicating any special condition of the general system.

The *cadaverous fetor* may, however, be taken as evidencing a septic condition, not only of the intestinal secretions, but also of the fluids and solids.

It is difficult to determine change in the elements of feces, and it will hardly form a part of ordinary examinations. The principal of these I append, Lehman's Chemical Physiology being the authority.

"The excrements in consumption are sometimes found to contain more *fat* than usual. *Sugar* is occasionally found in the feces of diabetic patients. The stools are found to be black, chocolate-colored, or tar-like, when blood is contained in them, and this arises from the upper intestinal canal; so also the semi-liquid, green excrements which are observed occasionally in typhus and other diseases, depend upon blood, which is easily recognized by the microscope. Soluble *albumen* is found in the stools in dysentery, typhus, and occasionally in Bright's

disease, and in cholera. The greatest quantity of epithelial cells are found in the dejections of cholera. *Cytoid corpuscles* are very numerous in the excrements in catarrhal diarrhœas, in dysentery, and occasionally in typhus and cholera. *Hyaline mucus* is observed in the excrements in catarrh of the large intestine; it arises from the follicles of the colon, and contains round or oval, pale or granular cells and cell nuclei. *Fibrinous exudations* occur in the feces in follicular ulceration and in dysentery."

THE CONDITION OF THE NERVOUS SYSTEM.—Lesions of innervation form a part of every disease, and hence are of marked importance in our estimates of disease. The careful study of the relation of the nervous system would occupy too much space here, and would be but a reprint of what may be found in my Principles of Medicine, pp. 270 to 310, to which the reader is referred.

We may determine the condition of the cerebro-spinal centers pretty accurately by the appearance of the eye, and it will be our best guide to the selection of remedies.

If the eye is bright, the *pupil contracted*, there is irritation with determination of blood—active hyperæmia; and the marked character of the symptoms will determine the intensity of the condition. The specific for this condition is Gelseminum.

If the eye is dull, the *pupil dilated*, there is atony of the nerve centers, with feeble circulation or congestion. The special remedy in this case is Belladonna.

Delirium is manifested in two very opposite conditions. In the first there is a full, hard pulse, flushed face, bright eye, contracted pupil, evidently a condition of excitement from increased circulation. In the other there is a soft, feeble pulse, pallid face, and dull eye—the delirium resulting from debility. Necessarily the treatment in the two cases will be the opposite of each other.

Pain is not usually a symptom of danger, though it is the *unpleasant* feature of sickness. Pain may be wholly local, depending upon a lesion of the part where it is manifested. Or it may depend upon a double lesion—of the part where it is produced, and of the nerve center upon which it is impressed.

It is also dependent upon two very opposite conditions. In the one there is excitation of the part, or of the part and the

nerve center, with determination of blood—an active condition. In the other there is an atonic condition of the part, or of the part and nerve center, with feeble circulation and impaired nutrition—a passive condition. Evidently the treatment in these two cases will be the opposite of one another.

The evidence of *unnatural excitation* of the nervous system, is found in pain, in general uneasiness, sleeplessness, and an unnatural prominence in the action of the muscles of expression. This evidence of expression, though so difficult to describe, is worthy of careful study at the bedside.

The evidence of *enfeebled innervation* is found in dullness and hebetude of intellect, in a want of expression both in the face and body, and finally in stupor and coma.

METHODS OF DIAGNOSIS.—There are two principal methods of diagnosis—the first, by direct symptoms; the second, by exclusion.

Direct diagnosis is made when the symptoms are sufficiently positive to locate the diseased action and determine its character. As an example, we may take *pleuritis*. The acute, lancinating pain in the region of the pleura, increased by respiratory movement, attended with cough, locates the disease; and the symptomatic fever determines its inflammatory character.

It is not necessary to adduce other examples, as they will at once occur to the reader. If the symptoms were always thus positive, diagnosis would be easy to the merest tyro in medicine; but they are not, and in many cases, we will have to proceed cautiously, in order that the *direct* symptoms do not lead us astray. As an example: A person applies to us, presenting marked evidences of impaired health; there is loss of flesh and strength; impairment of secretion and excretion; the appetite is poor, and digestion feeble; and he has a cough The grouping of symptoms pointed by the *cough* would indicate *phthisis*, and we would be inclined to express an opinion to that effect. But if we now proceed to a close examination, and find the pulse below 100, no pleuritic pain, no dullness on percussion, no roughness of the respiratory murmur, we determine that the *cough* does not arise from disease of the lungs, but is sympathetic. By continuing the examination we locate the disease in the stomach, or it may be in the organs of digestion as a whole, or in the urinary apparatus.

In some cases there are no symptoms sufficiently direct to point out the character of the disease or its location. In this case the diagnosis will have to be made by *exclusion*.

The general lesion—impairment of nutrition—will be manifest in the patient's appearance, and the necessity of means to improve digestion, blood-making, and of waste and excretion, will impress the observer at once.

The cause of this will be determined by an analysis of symptoms, excluding those common to several diseases, until finally we have those common to but one group, and at last to one pathological condition.

In determining the location of diseased action, we follow a similar process. With no direct symptoms to guide us, we proceed to question the various functions and organs: is it of the nervous system? of the respiratory apparatus? of the organs of circulation? of the digestive tract or function? of blood-making? of nutrition and waste? of excretion? etc.

In this way, passing the entire system in review, and comparing its present functional activity with the physiological standard, we will hardly fail to obtain a correct knowledge of the disease.

The ordinary *nosologieal* classification is only of importance as a general direction for diagnosis. We care nothing about the *name* of a disease, but only about its pathological character—the elements that go to form it.

He who expects to meet with special disease, as remittent, typhoid, and other fevers—pneumonitis, pleuritis, dysentery, and other inflammations—as always presenting the same character, and who expects to prescribe the recipes of the books, at such diseases, will make a lamentable failure in practice. It is such practice as this, no matter what school of medicine it is taken from, that increases the mortality in disease from ten to thirty per cent.

The best course for the young practitioner is, to analyze the disease before him, by the standard of *excess*, *defect* and *perversion*, passing every important function in review.

Then selecting the remedies with reference to this examination—those that *lessen*, those that *increase*, those that *change*—always direct treatment to that first, which is first in the chain of morbid phenomena; being careful not to attempt too much at one time.

Two rules may be laid down for the practitioner; and I am not sure but they might properly be called *golden rules.*

Do one thing at a time.

Never give medicine unless you are positive that it will relieve present discomfort, and shorten the duration of disease.

If the reader wishes to make a further study of diagnosis, I would advise him to procure *Specific Diagnosis.* In this, disease is studied with especial reference to the use of remedies, which are selected to meet definite expressions of disease, rather than because it has a certain name.

CHAPTER II.

FEBRILE DISEASES.

Fever is divided into two classes, *idiopathic* and *symptomatic;* in the first, there is no appreciable lesion of the solids, at least at its commencement, we therefore say that it is primarily a disease of the *fluids* of the body; in the second, there is primarily an inflammation, which induces febrile reaction, the fever being a secondary disease.

What change in the fluids of the body will give rise to fever? I know of but one, and that is the presence of some material that has so far lost its vitalization that it can not be applied to the nutrition of the textures, or serve any purpose in the animal economy. Such material may be generated within the body, or it may be introduced from without. In order to prove this proposition, I will describe next,

The Causes of Fever.—1st. From great excitation or depression of the mind we may have such change in innervation as will induce the above named condition of the blood. We well know that the depressing emotions of *fear*, *grief*, etc., occasion a slow and languid circulation of the blood, with more or less congestion, and arrest of secretion. If there is stasis of blood, that fluid is impaired in proportion to its continuance and extent, certain portions losing their vitality, thereby becoming material foreign to its constitution; arrest of secretion causes retention of the effete material of the secretions. Emotional excitement gives rise, first, to a rapid breaking down of the tissues, and second, by the subsequent prostration and consequent failure in the excreting organs, to the retention of this effete material. During febrile epidemics emotional excitement very frequently proves the exciting cause of the

disease. 2d. Suppression of the excretions will induce the same condition of the blood. The materials excreted from the body have undergone such change before excretion that they can no longer subserve any purpose in the animal economy, and therefore, if retained by failure of the excretory organs to remove them, must prove a cause of disease. 3d. Causes inducing congestion. As before remarked, if there is congestion of blood, a retrograde metamorphosis ensues, in which certain portions are so devitalized that they are unfitted for the purposes of the economy, becoming in fact elements foreign to the blood. 4th. Morbid material introduced into the blood from without; as gaseous exhalations from decomposing animal or vegetable matter, which gains entrance into the circulation through the lungs; or decomposing animal matter, which may be absorbed from the skin, mucous membranes, etc.

WHAT IS THE NATURE OF THIS MATERIES MORBI?*—I would define it to be any substance of lower organization than the blood — an organized body which is undergoing retrograde metamorphosis, and which will act as a diastase in the blood, effecting a similar destruction in every molecule of the blood that has not sufficient vital power to resist this change. Liebig compares the action of such material within the blood, to diastase, or yeast, having the property of inducing the same state of decomposition in all organized bodies with which they may be brought in contact.

If this is so, when such material is generated within the blood or introduced into it from without, there would be continued increase in its quantity. It would effect every portion of the system; nutrition could not be perfectly performed, because the quality of the nutritive material is impaired; innervation is affected, not only from the want of a properly constituted nutritive material, but also from the lack of the normal stimulus furnished by properly elaborated blood in the commencement, and by a greatly increased stimulation when reaction takes place for the removal of the offending substance; the secretions are vitiated, from the vitiated material in circulation, and we would thus have impaired digestion.

A very good example of the action of a blood poison, is afforded us by innoculation for the smallpox. The smallest

* See Principles of Medicine, p. 178.

quantity of virus, if placed where it can be readily taken into the blood, is as potent as a larger one. At first there is no disturbance of the system, the quantity of the poison being too small. But it increases day by day, and in time a gradually increasing depression is manifested by listlessness, languor, loss of appetite, morbid innervation, and arrest of secretion. Finally the depression becomes so great that there does not seem to be power enough in the system to circulate the blood, the result being a chill of variable duration. If this continues, vitality will be destroyed; hence in a longer or shorter time we find the energies of the system concentrated to overcome it; the result being *febrile reaction*, which ceases only when the material introduced has been entirely removed. In this case it is principally thrown upon the surface as a pustular eruption, but we notice that the poison has been wonderfully increased, as each pustule contains possibly a hundred or a thousand times the quantity introduced. This virus has been produced from the blood by the action of the original minute portion introduced.

As another example:—A person has been exerting himself more than usual, causing a greatly increased disintegration of tissue, which partially disorganized material remains in the blood. The exertion has been attended with increased excretion from the kidneys and skin, the last being especially manifest by the free perspiration. At this time the person ceases his exertion, and sits down in a damp place, or in a draught of cold air, the effect being to stop the excretion from the skin, and the material that would have been thus removed, is retained within the circulation. Not only so, but the blood is driven from the surface to internal parts of the body, embarrassing the action of the internal excretory organs. Now, if vicarious excretion does not occur from the kidneys or intestines, the result will be fever, or inflammation of some structure of the body accompanied by it. What are the phenomena that follow? There is first a torpor of all the functions of the system, followed by a chill or rigor, and this by febrile reaction, which terminates only when free excretion is established.*

Dr. Stevens well remarks, "that it is but a poor objection to say that neither the contagious poisons nor the marsh miasma can be detected in the blood by any chemical test. Those

*See Principles of Medicine, pp. 182 to 205.

agents, like the vital principle or caloric, are invisible, but like vitality, or the cause of heat, the aerial poisons produce the most visible effects. Whatever the origin of these agents may be, it is now, I believe, generally admitted that poisons often exist in the atmosphere, acting as the remote cause of fever; and if chemists do not yet possess any test to enable us to detect them in so simple a fluid as atmospheric air, we can scarcely expect to find them in one that is so complicated as the blood. When chemistry can detect them in the one, the same test may enable us to prove their existence in the other; until then, we may believe they exist in the blood, not only from the visible effects they produce in that fluid, but from the same evidence that we believe in their atmospheric existence, that is, from their effects; for, as yet, we have nothing else to enable us to prove that these poisons ever exist as the remote cause of those fevers which we believe to be produced by the aerial poisons. But when the air produces in those that breathe it, a specific fever, with a cold stage, an irritable stomach, a foul tongue, derangement in the biliary organs, disordered secretions, and the other symptoms of contagious or miasmatic fevers, we then believe that such air contains a poison. For the same reason, when the poison enters the system unperceived, and without producing any immediate effect on the nervous system—when it remains dormant for days in the body without producing any change, except in the blood—when we see that the whole current is dark in color, and diseased in its appearance, even before the attack—when this diseased blood first paralyzes the heart and then produces fever, with an irritable stomach, a foul tongue, and the other specific symptoms peculiar to this class of fevers—we may then on the same evidence, believe that the poison has entered the circulation, and that this is the cause; while the paralysis, the reaction, and the other symptoms which occur in the solids, are merely the effects of the disordered state of the nutritive fluid."

PHENOMENA OF FEVER.—A fever is composed of four stages: 1st, a stage of *incubation*, of variable duration; 2d, a cold stage; 3d, a hot stage; and 4th, a stage of excretion, or as it is commonly termed, the sweating stage. These follow one another in the order they are named, and each one may be considered as the natural sequence of the one that preceded it.

STAGE OF INCUBATION. The symptoms are, languor, listlessness, deficient circulation of blood as is marked by the coldness of the extremities and dryness of the skin, arrest of the excretions in a more or less marked degree, perversion or loss of appetite, feeble digestion, more or less pain in back or head, and restlessness at night. These symptoms gradually increase until the next stage is ushered in. It will be noticed that these are just the effects described as resulting from the presence of a morbid material in the blood, and we further prove it by adducing as examples the eruptive fevers, and effects following dissecting wounds, or other absorption of decomposing animal material, in which these symptoms are invariably produced.

COLD STAGE.—With the continued increase of the morbid material in the blood, we have such depression of the nervous system, that there is no longer power to circulate the blood; congestion of parts near the center of circulation ensues, there is deficient oxygenation and capillary circulation in the skin, the result being constriction, coldness and involuntary motion. If vital force is so depressed that reaction can not take place, these effects increase, and the patient dies in the second stage of fever, as we sometimes witness in congestive intermittents.

HOT STAGE.—We recognize in organized beings a certain conservative power, which opposes the operation of noxious agents, and labors to expel them when they are introduced. During the preceding stages this power has been in abeyance, but now, in order to prevent dissolution, it is concentrated to circulate the blood. The result is increased action of the heart and lungs, giving rise to the frequent pulse, return of capillary circulation to the surface, and increase of temperature. The rapid circulation of the blood causes excitation of the nervous system; the concentration of the *vis conservatrix* to the circulation of the blood, in addition to the other effects named, accounts rationally for the arrest of secretion.

STAGE OF EXCRETION.—If the hot stage has been proportionate to the others, equal circulation throughout the body having been established, and the deleterious material fitted for excretion, it terminates by the establishment of secretion from the skin, kidneys and bowels, and consequent return to health. It may take hours or days for the accomplishment of this end,

but if the patient recovers it is accomplished. In intermittent fevers we may suppose that the stage of excretion is not completed—that the blood is not entirely freed from the cause of disease; in such case, after a certain length of time, we would have such increased generation of the morbid material as to reproduce the fever. In remittent fevers, the object being but partially accomplished by one revolution of the disease, there is but remission in the febrile reaction.

COMPLICATIONS.—Owing to these marked changes in the circulation of the blood, we are surprised, not that local disease should ensue, but that its occurrence is so unfrequent. The stasis of blood in internal organs, impairs their function and may lead to change of structure, while its rapidity and increased momentum in the hot stage may, owing to the condition of the parts in the previous stage, occasion inflammation. The three first stages of fever are incompatible with the normal performance of the functions of the body.

DIVISION OF IDIOPATHIC FEVER.—We may divide fever primarily into the two classes, *periodic* and *continued*. The first is marked by distinct exacerbations and remissions, each occupying a certain amount of time and recurring with great regularity. In the second, we have but one revolution of the fever, the *hot stage* being continuous for days or weeks, until the disease terminates in a stage of excretion and return to health, or in death.

Periodic fevers we sub-divide into intermittent and remittent: in the first, the fever having made one revolution, entirely ceases for a time, to again reappear in all its stages; in the second we have but one cold stage, but the hot stage which succeeds it is marked by distinct remissions of tolerably regular recurrence.

Continued fever is subdivided into *synocha*, or sthenic fever; *synochus*, or common continued fever; *typhoid*, a fever with *enteric lesion* and marked depression of vital power and depravation of the blood; and *typhus*, a fever arising from animal infection, and characterized by a specific eruption.

To these divisions we would add the *exanthematous* fevers, which are produced by the absorption of a specific virus, which reproduces itself in the blood, and is finally determined to the skin.

INTERMITTENT FEVER.

CAUSES.—A majority of the profession concur in saying that intermittent fever is produced by the absorption of the gaseous exhalations of decomposing vegetable matter, or *marsh miasmata*. In proof of this position, it is shown that this form of fever is endemic in those sections where vegetation is profuse, and the conditions necessary for rapid decomposition generally exist; and that, in other sections, where these conditions do not exist, it is not found. It is further proven by the fact that in those sections where it is endemic, if the season is remarkably wet or dry, so as to prevent vegetable decomposition, there is, during such season, but few if any cases of the disease. Any cause which will depress the vital power of the system, will predispose the patient to the action of this malarial poison.

GENERAL DESCRIPTION.—Intermittent fever might be considered as a succession of fevers, occurring at regular periods, with an interval of health between each. From the beginning of one of these to the commencement of the next, is termed a *revolution* of the disease, which comprises a *forming*, *cold*, *hot*, and *sweating* stage, and the period of intermission. The *type* of the disease has reference to the length of these revolutions. Of these there are three principal and two minor: 1. Where the disease makes a revolution in twenty-four hours, it is termed a *quotidian*, the fever recurring every day. 2. The revolution occupying forty-eight hours, it is said to be of the *tertian* type, the fever recurring every other day. 3. Requiring seventy-two hours for a revolution, it is termed a *quartan*. 4. There may be two revolutions in twenty-four hours, when it is said to be a double quotidian. 5. The disease recurring every day, but at different hours each day, the fever is called a double tertian. This distinction is made because experience has shown that one of the paroxysms of fever may be arrested, and yet the other will continue as a simple tertian.

In some cases the fever continually recurs at an earlier hour in the day; it is then termed *anticipating ague*. In others it comes on later, and is called *deferring;* and in others, there being no regularity in its recurrence, it is named *erratic*.

SIMPLE INTERMITTENT FEVER.

SYMPTOMS.—Frequently, for some days preceding the manifestation of the disease, the patient complains of listlessness, languor, indisposition to exercise, more or less derangement of the appetite and digestion, and torpor of the excretory organs. We call this the *forming stage.*

The *cold stage* is ushered in by a desire to yawn and stretch, sense of chilliness, desire to draw to the fire, more or less pain in the back, sometimes in the head, with increased thirst; chilliness increases, with trembling of the muscles, rigors and chattering of teeth; the pulse becomes excited, small and increased in frequency; capillary circulation of the surface is diminished; purplish appearance of nails; skin of the extremities loses its natural healthy glow and color; fingers become smaller, so that rings drop off; countenance shrunken, lips blue or livid, with general contraction of skin, and protrusion of hair-bulbs, giving that roughened appearance denominated *cutis anserina;* respiration is labored; tongue usually pale, with slight whitish coat; dryness of mouth, and insatiable thirst. In some cases there are no rigors—chilly sensations pass up and down the back, and radiate over the body; at last they are alternated with flushes of heat, which continue to become more intense, until the hot stage is fully ushered in. Sometimes there is irritation of the stomach, with nausea and vomiting. This stage of the disease may last from a few minutes to four or five hours.

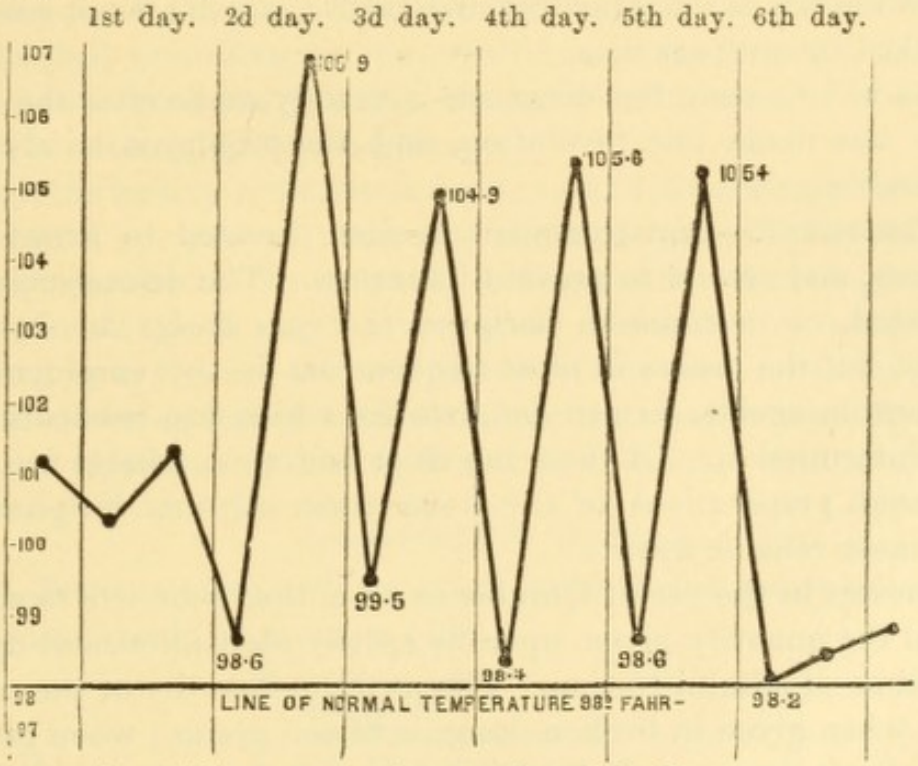
The *Stage of Reaction*, or *Hot Stage*, is generally in inverse proportion to the chill. If it has been severe and long-continued, febrile reaction is generally slight; if it is light and of short duration, febrile reaction is high. The sensation of coldness gradually disappears; respiration becomes free and regular; the pulse increases in strength, and is full, open and less frequent; the skin becomes warm, and capillary circulation free. Reaction does not stop here, but in a short time we find the temperature of the surface considerably increased—sometimes as much as 10°; the pulse increases in frequency to 100 or even 120 beats per minute, and is more open, full and bounding than in health, with more or less excitatation of the nervous system, sometimes amounting to delirium. The se-

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cretions are all diminished; the mouth is dry and husky; tongue parched and cracked, sometimes coated with a white or yellowish fur, and at others red; the skin is dry, harsh and constricted; urine scanty and high colored, and does not deposit a sediment on cooling; and generally constipation of the bowels. This stage is of variable duration—from one or two, to twenty or twenty-four hours.

As the sweating stage is ushered in, all the symptoms become ameliorated—the skin becomes soft, moist and natural, with sometimes profuse perspiration. The urinary secretion is increased in quantity, is less highly colored, and deposits a sediment. The pulse becomes natural, the heat has disappeared, and the patient enjoys comparative health.

TYPICAL RANGE OF TEMPERATURE IN A CASE OF INTERMITTENT FEVER OF QUOTIDIAN TYPE. THE RECORDS INDICATE THE HIGHEST AND LOWEST TEMPERATURES DAILY. (Wunderlich.)



The reader will see at a glance, that this diagram represents his ideal of intermittent fever, with the morning intermission and evening exacerbation. We notice first, that the day previous to the chill shows a temperature of 101°, indicating the influence of the fever poison upon the vital processes. In the forming stage of all fevers, we notice this increase of temperature, and in this case it would have shown itself a week or ten days before, at about 99°, then gradually increasing to 100°, and on the eve of the previous day to 101°.

Quite frequently we find that the first day shows but slight exacerbation, but afterwards the temperature rises to 104° to 106° during the exacerbations. I have seen cases in which it reached 109°. If the diagram showed the period of chill it would be more instructive. Persons generally think that the temperature is *lowered* during the chill. This is a mistake, for it is rarely less than 100°, and frequently 101°. This is shown in the diagram of the first day. If the reader will dot the ascending lines at from 100° to 101°, he will make the diagram give the history of the disease plainer.

In a simple intermittent, the temperature always falls to the normal standard during the intermission. If upon testing the temperature with the thermometer, it shows 99°, 100° or 101°, there is some complication, which should be immediately traced and removed. This gives us that stubborn class of intermittents known as inflammatory and gastric, which are not readily reached by antiperiodics.

As will be seen, the diagnosis is readily made after the disease has made one revolution, and the prognosis is always favorable.

TREATMENT.—Our treatment is first directed to arrest the disease, and second to prevent its return. The disease may be arrested, or in common parlance, the *ague broken*, in several ways, but the means in most frequent use is the employment of certain agents, termed *antiperiodics*, which are used during the intermission. Of these the chief and most reliable are the different preparations of Cinchona bark. Quinia Sulphas is the most reliable agent.

Success in the use of Quinine as an antiperiodic will depend upon the quantity given, upon its speedy absorption, and upon the time of administration. The medium quantity of the remedy, when given in broken doses, is fifteen grains; when given in a single dose, ten to twelve grains. It is most readily absorbed when in solution; and I am satisfied that many times it will be best to dispense it dissolved in water by the aid of sulphuric acid—so that the dose would be one or two ounces. If there is an objection to the taste, make an infusion of glycyrrhiza, and use it as the vehicle.

Quinine may also be used in pill form, if properly prepared. What we require is that it shall be of ready solution, and hence we object to pills made with the common vehicles. A

Quinine pill should be made with strong Sulphuric Acid, which forms a more soluble sulphate, and gives an excellent pill mass. They are readily prepared, in a glass or porcelain mortar, or on a pill-tile—the necessary amount of quinine being put in, Sulphuric Acid is added drop by drop until sufficient to give pillular consistence; it is then rolled to proper sizes, and divided into pills of from three to five grains each.

Many employ Quinine in combination with the Prussiate of Iron, which they think gives additional efficacy.

℞ Quinine, grs. xv.
Prussiate of Iron, grs. x. M

Divide in three powders, and give one every three hours during the intermission, so that the last powder shall be taken one hour before the expected return of the fever. The proportions named may be considered the medium quantity to prevent the recurrence of the paroxysm, but will have to be increased or diminished according to the condition of the patient. If it does not succeed the first time, repeat with increase of dose, if there is nothing to contra-indicate.

Quinine having a nauseous taste, we find it necessary for the comfort of our patient, and many times essential to prevent its speedy ejection by the stomach, to disguise it. A strong infusion of cold green tea, is a very good vehicle for its administration, as is also a weak solution of tannic acid, much of the bitterness being lost in both cases; or the remedy may be enveloped in *gelatin capsules*, or it may be combined with an acid.

℞ Quinine, ʒij.
Aromatic Sulphuric Acid, fʒj. M

Dose, ʒss. every two or three hours, until the necessary amount is administered; or given in pills.

℞ Gelsemin, grs. v.
Quinine. ʒj.
Prussiate of Iron, grs. xx.
Ext. Black Pepper, q. s. M

Make fifteen pills, and give one every hour.

We find cases occasionally in which this remedy will not be received by the stomach at all; these are most generally persons of a delicate, nervous habit; here it may be used by enema or inunction; I prefer the latter.

℞ Quinia Sulphas, ʒj.
Adeps, ʒij. M

To be thoroughly rubbed once or twice daily. This is especially a good way to use the agent in diseases of children.

Next to Quinine I regard Strychnia as the most certain antiperiodic. The medium dose will be about the 1-30th of a grain, repeated two or three times during the intermission. I would advise the following formula for preparing a solution of Strychnia for common use:

℞ Strychnia, (in crystals), grs. iv.
Dilute Muriatic Acid, ʒss.
Water, ʒxvss. M

A fluid-drachm will contain the 1-32d part of a grain of the salt, and a teaspoonful will be the medium dose.

Quinine may be used as a hypodermic injection, and if it was soluble like morphia, this would be its most certain and economical method of administration. The commercial sulphate can only be held in solution by Sulphuric Acid in such quantity as to prove irritant, and sometimes to cause severe inflammation, running to suppuration.

Strychnia may be used by hypodermic injection with great certainty. For this purpose we use the officinal solution, grs. iv. to water, f.ʒxx; ten minims contain the 1-30th of a grain, and fifteen drops may be used as an injection, one hour before the expected chill.

Common salt has been employed with advantage as an antiperiodic, and I have used it myself with success. The dose is twenty grains every three hours. The Memphis Medical Recorder reports some fifty or sixty cases cured by the use of the solution in the following form:

℞ Salt, ʒiij.
Powdered Elm, ʒiij.
Boiling Water, ʒviij. M

A teaspoonful every two hours during the apyrexia.

Sulphite of Soda has also been successfully employed some seasons. I think it will only prove useful in those cases in which the tongue is broad and pallid, and covered with a pasty fur. The dose is twenty grains every three hours.

There are some cases in which, from idiosyncracy of the patient, the Quinine produces severe excitation of the nervous centers, as is marked by headache, ringing in the ears, great irritability, or in rare cases, torpor of the entire system. In many of these, the reason of this will be found in some derangement of the stomach, which should be corrected, but in others we have to substitute other agents. Cinchoniæ Sulphas and Quinoidine may be substituted for Quinine in almost all

cases except the last named, but they are not so efficient; they are given in the same manner, medium quantity for arrest of disease, gr. xx. The Cerasine and Prunine may be used advantageously in many cases, especially in the exceptional ones named. Medium quantity for arrest of disease, gr. xx, in three or four doses. The Salacine, Cornine, Piperine, etc., have been used, but are inferior agents. The Euonymus Atropurpureus or *Wahoo*, taken in infusion, has proven quite an efficient agent, and may be advantageously employed with the other remedies named.

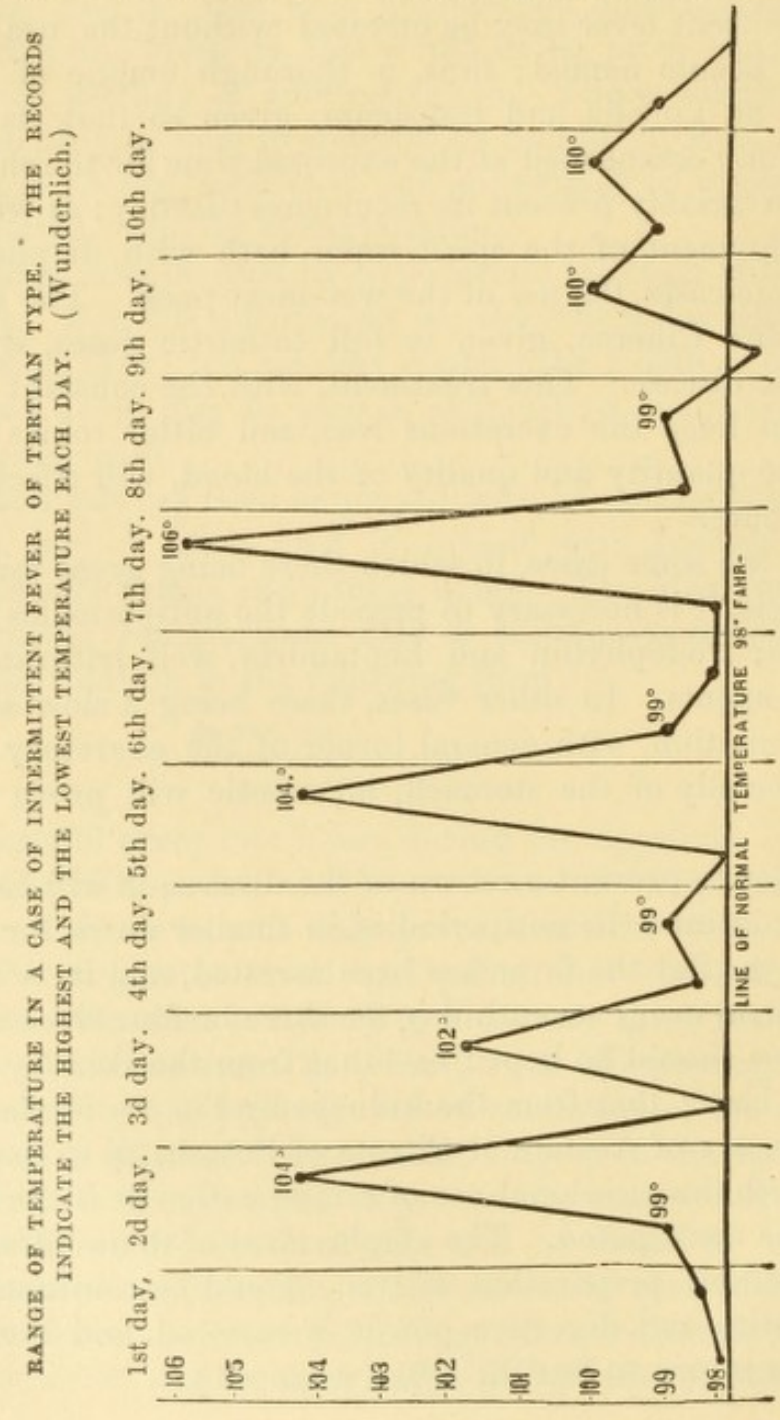
Intermittent fever may be arrested without the use of the class of agents named; thus, a thorough emetic of Comp. Powder of Lobelia and Capsicum, given so that its action will be fully established at the expected time for the chill, will almost invariably prevent its recurrence that day; as will, also, the employment of the spirit-vapor bath with diaphoretics; or, in some cases, the use of the wet-sheet pack. The Extract of Juglans Cinerea, given in full cathartic doses, will also arrest the disease. This treatment, with the constant use of means to keep the excretions free, and bitter tonics to improve the quantity and quality of the blood, will effect a permanent cure.

There are some cases, in which there being great torpor of the bowels, it is necessary to precede the antiperiodics with a cathartic; Podophyllin and Leptandrin, well triturated, are efficient agents. In other cases, there being a slow and languid circulation, with general torpor of the excretory organs and especially of the stomach, an emetic will prove advantageous.

In order to prevent a return of the disease, it will be necessary to continue the antiperiodics, in smaller doses, for two or three days after the fever has been arrested, and it is well to repeat them every seventh day for three or four weeks. The excretions should be kept free—that from the skin by an occasional bath; that from the kidneys by the use of the saline diuretics, say of Acetate or Citrate of Potash, ℈j to ʒss, twice a day; with the occasional use of a mild cathartic if the bowels should be constipated. The employment of some bitter tonic, with a soluble preparation of iron, should be continued until the appetite and digestive power is restored, and there is a complete return to health. (See page 65)

INFLAMMATORY INTERMITTENT FEVER.

The term inflammatory is employed here to denote a high grade of febrile action, and not the presence of inflammation; though this form of intermittent is probably more frequently complicated with inflammation than either of the others. This fever occurs more frequently in winter and spring than in autumn. The additional symptoms that characterize the disease are: a less marked cold stage, a much more violent



febrile reaction, with great excitation of the nervous system, frequently delirium, and more marked arrest of the secretions. We notice during the hot stage, which is of longer duration, that the skin is dry, hot and constricted; urinary secretion very scanty and high colored; bowels obstinately constipated; the mouth dry, tongue coated white, and a hard resilient pulse.

The most marked difference, however, is in the sweating stage, which is incomplete, and in the intermission, which is not perfect; the pulse still retaining an unnatural hardness, the skin being dry, urinary secretion still scanty, considerable thirst, with marked irritability of the nervous system.

The accompanying diagram represents the temperature in a case of tertian ague, terminating in recovery the eleventh day. This is a simple case, as is shown by the range of temperature on the days of intermission, 98¼° to 99°, and is one readily reached by quinine. If the reader will now take his pencil, and mark the periods of remission one to one and a half degrees higher, he will have the outline of the more stubborn cases, that require additional means.

We not unfrequently meet with an *inflammatory* intermittent, presenting the following range of temperature, in the quotidian type.

	3d day.	4th day.	5th day.	6th day.	7th day
Evening.....	105°	106°	106½°	107°	105°
Morning.....	100	100½	101	100	100½ and thus on.

ADDITIONAL TREATMENT.—As will be noticed by examining the above symptoms, the indications are, to lessen the force and frequency of the heart's action, relax the system, and promote a normal stage of excretion; and, in many cases, these will have to be fulfilled before antiperiodics can be used with advantage. If we see the patient during the hot stage, the administration of sedatives, and the frequent use of the alkaline bath (cold) or the wet-sheet pack will lessen the fever, shorten its duration, and favor more perfect secretion. Of the direct sedatives, the Veratrum Viride and Aconite are the best. I frequently administer them together.

℞. Tincture Veratrum, gtts.
Tincture Aconite, gtts.
Water, ℥vj. M.

Give the patient a teaspoonful every half hour or hour until the pulse becomes normal in frequency and its hardness disap-

pears, then continue in smaller doses to keep up the effect until the disease is permanently arrested. If secretion is not established with these means, as soon as the pulse is reduced, follow with some diaphoretic infusion and the saline diuretics, keeping the bowels in a soluble condition, and using the alkaline bath. The nauseant emetics may be used to produce sedation; for instance:

℞ Asclepias Tuberosa, Eupatorium Perfoliatum, aa. ℥j.
Sanguinaria Canadensis, ℥ij.
Nitrate of potash, ℥ij. M.

During the fever give in doses of grs. xx every two hours, with Tincture Gelseminum, sufficient to produce its specific effect, and when the fever begins to disappear, increase the dose of the first until free secretion is established. After fulfilling these indications the antiperiodics will invariably prove successful.

GASTRIC INTERMITTENT FEVER.

This variety is characterized by predominant disease of the gastro-intestinal mucous membrane and associated viscera We notice two conditions especially:

First.—The tongue is broad and flabby, or broad and thickened, pale, and more or less heavily coated at base with a yellowish dirty mucus, with a bad taste in the mouth, and frequent sensation of nausea. The appetite is impaired, digestion feeble, bowels constipated, with clay-colored evacuations when moved; the skin is sallow, flabby or puffy, with coldness of extremities; the urine is normal in quantity, but pale, turbid, frothy, and of low specific gravity; the patient has no desire for exercise, feels torpid, and has frequently a dull, heavy headache. The *cold stage* is generally marked, and of long duration; reaction is not very high, but frequently protracted, occasioning much suffering. In many cases there is nausea, with ineffectual attempts to vomit, in both stages.

Second.—There is much gastro-intestinal irritation; the tongue is somewhat contracted and pointed, coated in center, and edges reddened; there is frequently a bitter taste in the mouth with sense of nausea, and tenderness on pressure over the epigastrium. The skin is constricted and wears a jaundiced appearance; the bowels but slightly constipated, with sometimes alternations of diarrhœa, when the disease is of long

duration, and the urine is frequently colored with bile during the cold and hot stage. Febrile reaction is generally high and attended by more or less delirium.

In both cases, if the disease is of long duration, the patient becomes cachectic; there is frequently enlargement of the spleen, or *ague-cake*, disease of liver, dyspepsia, and much irregularity of the bowels, even after the fever has been arrested.

ADDITIONAL TREATMENT.—To lessen the severity and duration of the chill, from which the patient suffers so severely in some of these cases, there is nothing more effectual than chloroform. It may be given in doses of from gtts. xv. to gtts. xxx. in any emulsion, or in simple syrup.

In either of these cases it is of but little avail to use antiperiodics until we have at least partially removed the complication. In the first case, the treatment should be commenced by the administration of a prompt and thorough emetic, which may be repeated every second or third day, until it overcomes the torpor of the stomach, and checks the too abundant secretion of mucus. To overcome the torpidity of the liver and bowels, small doses of Podophyllin and Leptandrin, or infusion of Leptandra and Podophyllum, are efficient. To assist in overcoming the condition of the bowels named, and to get normal secretion of urine, I employ Acetate of Potash in doses of from one scruple to one drachm, three times a day. Especial attention should be paid to the skin by the frequent use of a tonic and stimulant bath: an infusion of equal parts of Hydrastis and Quercus Alba, with the addition of Alcohol or Tinct. Capsicum, answers a very good purpose.

In the second case we wish to first arrest irritation of the stomach, bowels and liver. For this purpose counter-irritation over the epigastrium and right hypochondrium is important; the frequent application of a sinapism answers in recent cases, but when of long duration I use the irritating plaster. In the use of the last named means, it is not necessary, in a majority of cases, to produce suppuration; apply it until it raises a small crop of pustules, then remove it and reapply in twenty-four or forty-eight hours, when the irritation has disappeared. Internally, an infusion of Peach Bark and Dioscorea equal parts, followed by Hydrastis, is very effectual; if there is much irritation of the liver with hypersecretion,

small doses of Leptandrin and Opium or other agents of a similar character are indicated. The saline diuretics will be found very important agents in this case, given in small doses.

The continued use of small doses of Aconite and Belladonna will be found of marked advantage in some of the more persistent of these cases. They give strength and freedom to the circulation, improve secretion, and place the system in better condition for the action of tonics. I would recommend it in the following proportion:

℞ Tincture of Aconite, gtt v.
Tincture of Belladonna, gtt x.
Water, ʒiv. M

A teaspoonful every one or two hours.

In these cases, when the tongue is pallid, broad, and covered with a pasty fur, the use of the Sulphite of Soda will give good satisfaction. It may be given to the extent of from one to two drachms in twenty-four hours.

Frequently an irritation of the gastro-intestinal mucous membrane will be continued by retention of acrid feces, the bowels not being thoroughly evacuated, even though the patient is suffering with diarrhœa. Where such is the case, a mild but thorough cathartic is important. If the irritation of the bowels is great, with colicky pain preceding and attending the discharges, the free use of demulcents, with demulcent and narcotic enemas, are sometimes beneficial. Again, there are cases in which it is impossible to check the irritation by any of the means named, in which we resort to an emetic, repeated as often as may seem necessary, using such measures as will thoroughly arouse the secretions.

In this form of the disease, as in others, we depend upon the antiperiodics to arrest the paroxysms, and yet there are very many cases in which their influence is but temporary. For a radical cure, we must in addition use such means as will stimulate and keep up secretion from the skin, kidneys, and bowels, and restore tone to the entire system.

MASKED INTERMITTENT.

The name, Masked Intermittent, is applied to those diseases which, while presenting but few or none of the symptoms of fever, are yet distinctly periodic in their nature.

Almost every disease known may have a periodic complication, and require a treatment adapted to intermittent fever.

Periodic Neuralgia is, perhaps, the most frequent of the masked agues. We find a patient with a severe headache or pain in the face, which occurs regularly every day or every second, third, or fourth day, or is sometimes erratic in its recurrence. It resists the common means of cure, but readily yields to Quinine and Iron. The rule is, that any disease, no matter what its location or character, that is distinctly periodic in its recurrence, should be treated with antiperiodics. Even when, as in inflammation, they do not arrest the disease, the removal of this periodic complication so modifies it that it yields to other treatment.

CONGESTIVE INTERMITTENT.

CONGESTIVE CHILL.

SYMPTOMS. — There is considerable discrepancy among writers in regard to the symptoms of this disease. I will describe it as I have seen it, and from descriptions sent me from physicians in the South West. In some cases, the congestive chill is preceded by one or more paroxysms of simple intermittent fever; in others, the first chill presents marked evidence of congestion.

In *mild* cases, the cold stage at first presents no unusual symptoms; but in an hour or two we notice that the temperature of the surface is markedly diminished; the prostration of strength is unusual; the patient is lethargic, and sensibility greatly diminished; he complains of giddiness, heaviness, pain, and sense of weight in his head; all the functions of the body are more or less impeded. In some cases the symptoms are extremely severe, in others there is nothing but a sense of deathly coldness. The skin at first contracted becomes relaxed, and frequently covered with a clammy perspiration. The pulse at first increased or normal in frequency, becomes slow, 50 or 60 beats per minute, and is weakened and oppressed. This stage continues from four or five to twelve or more hours.

Reaction comes up slowly, flushes of heat pass over the body, sensibility increases, the mind is less confused, the pulse increases in frequency and strength, but is still labored, and the

surface gradually becomes warm. Finally the secretions become partially established and the paroxysm is at an end. In some cases marked febrile reaction with delirium, succeeds the cold stage, but this is rare.

In *some cases* the symptoms named in the *cold stage* are all aggravated. From the first there is a peculiar besotted expression of the countenance, and the patient is undecided and careless as to the result. There is also marked loss of strength, and inability to command the voluntary muscles, so that if he attempts to walk he staggers like a drunken man. The coldness gradually increases until it becomes extreme; sometimes there are severe rigors, at others none. The pulse is almost invariably slow, feeble and oppressed. The tongue is broad, flabby, and protruded with difficulty; sometimes nausea and vomiting in the early stage; frequently a disagreeable sense of tension in the epigastric region; the respiration is short and weak, and the patient frequently complains of great oppression in the præcordial region.

As the disease advances, the confusion of the intellect increases; coma comes on; the patient lies upon his back with tendency to slip down to the foot of the bed; breathing is more difficult; pulse small, weak and fluttering, or is intermittent, trickling under the finger like drops of water, and at last can not be felt at the extremities; a cold clammy perspiration, sometimes fœtid, covers the body; the face assumes a leaden hue; the lips are contracted over the teeth, and the patient dies, reaction not having taken place.

In some cases a sero-sanguineous diarrhœa occurs; in others there is colliquative hemorrhage from various parts, with petechia. Occasionally there is nausea and vomiting, at last of dark, grumous, broken down blood; sometimes there are convulsions.

DIAGNOSIS.—The diagnosis of a severe case of congestive intermittent is easy, even at the commencement. The torpor of the nervous system, loss of voluntary motion, and slowness and oppression of the pulse, are sufficient symptoms.

POST-MORTEM EXAMINATION. — Evidence of congestion of internal organs is very apparent. The vessels are engorged with dark blood, sometimes very much broken down. The digestive mucous surfaces are frequently altered; often softened

and injected with dark blood in patches or spots. The lungs, liver and spleen are frequently found congested; the two last being sometimes considerably enlarged.

PROGNOSIS.—In severe cases it is thought that not more than one per cent. would recover unaided, still if proper means are employed before the congestion becomes extreme, the prognosis may be considered favorable.

TREATMENT.—The first indication in the treatment of the disease is to effect reaction, which is accomplished by the employment of general and local stimulants, and means to overcome the extreme prostration of the nervous system. The second, to prevent the recurrence of the attack.

To fulfill the first, energetic means must be adopted—such as will overcome the congestion and promote the general circulation. To determine the circulation to the surface, Mustard friction, or a sponge bath of diluted Tincture of Capsicum, or other stimulants, with brisk friction with the hands, will be sufficient in mild cases. When the attack is severe, however, I direct a kettle of water to be put on the fire, and add of Mustard or Capsicum a sufficient quantity to render it strongly stimulating, then when hot, wring a blanket out of it, applying it to the patient, covering him warmly, and applying bottles of hot water, hot brick or irons, or anything that can be obtained that will retain heat, to all parts of the body. Or instead, a tub of water may be heated, Capsicum and Mustard added, and the patient placed over it so that the vapor will reach every portion of his body; then placing in the water hot stones, bricks or iron, the hot vapor will be made to envelop the entire surface, and will be a most efficient means of stimulation.

If there is nausea, with weight and tension at the epigastrium, a stimulating emetic should be immediately administered; equal parts of Compound Powder of Lobelia and Capsicum, and Mustard, answer a very good purpose. If this is not necessary, we administer first, a strong topical stimulant to warm the stomach and promote circulation in it; as the Compound Tincture of Cajeput in teaspoonful doses every five or ten minutes, or a strong infusion of Capsicum or its tincture, until a sensation of warmth is felt in the stomach. In many cases the patient's life depends upon these means, for the

stomach is so torpid and its circulation so sluggish, that without them, no absorption of any remedy will take place. Thus in a *post-mortem* examination of a case of congestive intermittent, made by me, nearly the whole amount of Quinine taken, was found in the stomach and duodenum.

The means named, though of the highest importance, are only preparatory for the remedy upon which we place the greatest reliance. In fifteen or thirty minutes, or at farthest an hour, we will find that the internal stimulants are having their effect, when we commence the employment of Quinine. The dose of this agent depends upon the severity of the case; when mild, gr. x, repeated every hour or two, until reaction ensues, will be sufficient; the greater the prostration and torpor, the larger should be the dose, until in extremely severe cases it has been administered in one drachm doses every hour with the happiest effects. I have administered in one case, half an ounce in four hours, without the slightest injurious effect. The general stimulant should be continued in smaller doses during the administration of the Quinine.

After reaction is established, we use means to restore all the secretions, and here I do not wish to be understood as recommending means that greatly stimulate the excretory organs, because such stimulation almost invariably results in prostration and an arrest of secretion. Remedies that act mildly are the ones required. Then administer the requisite quantity of antiperiodics, (Quinine is the only agent that can be depended upon in this case,) to prevent a recurrence of the attack. The quantity of Quinine, as a general rule, will have to be larger than in simple intermittent, say from grs. xx. to half a drachm, during the intermissions. It is a good plan to put the patient upon the use of the Extract of Nux Vomica, in doses of about one-sixth of a grain every four hours, after reaction is established, especially if the circulation is feeble.

In very severe cases, when it was evident the patient had passed beyond the reach of remedies by mouth, I would suggest the use of the hypodermic injection of Strychnia. The dose might be one-fifth of a grain, and repeated. Its use in the collapsed stage of cholera leads me to make the suggestion.

CHRONIC INTERMITTENT FEVER.

All who have had much to do with ague know that it is a peculiarly intractable disease in some cases. It has become a proverb in malarial countries, "that almost any fool can break an ague, but it requires a smart doctor to keep it from coming back." In some cases, indeed, quinine will not "break it," though I think if care be used in the diagnosis of the disease, and the remedies used as named, the reader will have but little trouble.

It is well to recollect that the indication for quinine is the *periodicity*. If this is *the* element of disease, there being no other prominent wrong, it is safe to trust to quinine. But if there be other wrongs, these must be rectified before a cure can be expected. It is possible that in malarial disease, quinine will diminish the frequency of the pulse; increase the strength of the pulse, and give freedom to the circulation; remove congestion, and equalize the circulation; facilitate retrograde metamorphosis; stimulate secretion from the skin, kidneys and bowels; rectify wrongs of the nervous system; correct depravations and changes in the blood; act as a tonic, restorative, food, etc. Still, when we come to think of it, it is a little too much to expect from one remedy. Yet we must not forget that the malarial poison being antidoted, and this one depressing weight removed, the natural re-action (tendency to health) may be sufficient for the restoration of every function.

But there are cases of ague in which the malarial element is not *first;* there is some other lesion that needs to be looked after first. We have found such cases in acute ague, and we will find them giving a large number of obstinate ones.

CASES REQUIRING REMEDIES THAT INFLUENCE THE CIRCULATION.—I claim that any case of intermittent showing increased temperature, increased frequency of pulse, torpor of the organs of excretion, and irritation of the nervous system, should have the sedative before giving quinine, as a part of a good treatment. It is true that persons suffering from ague do not like to wait the slow action of remedies—they want it broken at once; yet if they are told that the slower cure is the more radical, they will take it in preference. A man showing the

wrongs that would ordinarily call for sedatives, may have the ague broken by anti-periodics, but it returns again and again, and gives us a chronic case.

Aconite. If a patient presents himself with a *small, frequent* pulse—usually small and hard during febrile re-action, small and soft in the intermission—the tissues being somewhat contracted, color not very much changed, I would recommend the administration of Aconite, say—℞ Tincture Aconite gtt. v to gtt. x, Water ℥iv ; a teaspoonful every one or two hours.

Veratrum. Veratrum does not seem to have as large a field of usefulness as aconite, but still we have an occasional case in which it is useful. The pulse is *frequent and full*, the tissues full, the patient full-blooded. Prescribe it in the usual dose: ℞ Tinct. Veratrum gtt. x to gtt. xx, Water ℥iv; a teaspoonful every one or two hours.

Lobelia. Lobelia is used for its influence upon the circulation, as well as an emetic, and it is this first use we wish to study here. There is a sense of precordial oppression, difficulty of respiration, and a full oppressed pulse; we give the tincture of the seed in doses just short of nausea. In the olden time an extract of lobelia was combined with black pepper or piperine as in the following; ℞ Extract of Lobelia gr. x, powdered black pepper ℥j ; make three-grain pills, and give one every hour.

Rhus. If in a case of chronic ague (acute) I find the pulse small and frequent, with a sharp stroke, acute pain in the forehead or in the orbits, especially the left side, and small red spots (papillæ) showing upon the upper surface of the tip of the tongue, I should prescribe Rhus, usually with Aconite, though sometimes alone. Yellowish blisters about the lips or mouth, bright red spots with burning on any part of the surface, may make the indication stronger. My common prescription is, ℞ Tinct. Rhus gtt. v, Tinct. Aconite gtt. v, Water ℥iv ; a teaspoonful every hour.

Gelseminum. Though the influence of gelseminum is primarily upon the cerebro-spinal centers, it also influences the circulation, and we may study it here. In the ordinary treatment of ague, many physicians use gelseminum associated with quinine where there is evidence of an excited nervous system. The flushed face, bright eyes, contracted pupils, increased heat of the scalp, restlessness and irritabillity, are the com-

mon symptoms indicating it. It is difficult to name the dose, as there is such a wide difference in the strength of the preparations furnished by druggists.

Belladonna. Belladonna is the remedy for congestion of the nerve centers, as marked by drowsiness, tendency to coma during the paroxysms of fever. The face is dull, expressionless, the eyes dull, the pupils dilated, and indeed there is a want of expression in all parts of the body. In the recent disease, we give belladonna in such a case, as a preparation for quinine, and in a chronic case, where the symptoms were marked we would expect it to cure. Usually there is the indication for aconite as well, and we would give the two together, as—℞ Tinct. Belladonna gtt. x, Tinct. Aconite gtt. v, water ℥iv ; a teaspoonful every one or two hours.

There are other remedies that might be grouped with these, that we sometimes find useful, but the above must suffice for the present.

REMEDIES INFLUENCING THE DIGESTIVE APPARATUS AND THE SPINAL AND SYMPATHETIC NERVOUS SYSTEM.—I think the lesions of innervation associated with wrongs of the digestive apparatus, are more important than the functional wrongs of the organs themselves. We never have a wrong of the stomach, bowels, liver or spleen, that we have not an equal wrong of innervation from the solar plexus, and sometimes of the spinal cord.

Emetics. In the olden time the emetic was a prominent means for the cure of chronic ague, either as preparing the way for antiperiodics, or serving instead. Even yet, with our abundant means, we find cases in which the emetic is the shortest way to a cure. The case is well marked, and need not be mistaken. There is a marked oppression of the nervous system, an oppressed pulse and respiration, sensations of fullness or weight in the epigastrium, disgust of food, and a tongue broad and heavily loaded at the base. In such a case a thorough emetic gives prompt relief.

Cathartics. I deprecate the common use of cathartic medicine, and feel confident that many failures, even in the treatment of ague, are due to their injudicious use. Still, if there is evidence of material in the bowels, which serves either as a cause of depression or of irritation, it should be removed. Simple constipation is not sufficient to justify their use. The

simpler the means, and the milder the action, the better it is for the patient in the ordinary case.

Podophyllin. There is a condition of the nervous system, and of the circulation, calling for this remedy, as well as a condition of the digestive apparatus. In the recent disease there is a case in which podophyllin prepares the way for a cure by quinine. There is oppression of mind, of muscular action, of respiration, of the circulation. The tongue is broad, coated from base to tip, the face is full and expressionless, and there is especially *fullness of the veins* with evident impairment of venous circulation. Even the old fashioned emeto-catharsis with podophyllin serves a good purpose here.

In a chronic case of ague presenting these symptoms, I should give podophyllin in doses sufficient to obtain its full action.

In some cases, we do not want the decided action of podophyllin. The ague has been arrested for the time, and we are looking to a radical cure. There is an atonic condition of stomach, of intestinal canal, of the organs associated with it, and oppressed innervation from the sympathetic; the patient is dizzy, suffers from dull headache at times, and does not feel like work. In such cases I prescribe podophyllin with hydrastia in small doses, as the following: ℞ Podophyllin grs. ii, Phosphate of Hydrastia grs. x; make forty pills; one or two may be given each day midway between meals.

Nux Vomica. We use nux vomica in the recent disease, when there is nausea, colicky pains in the bowels, pain in the right hypochondrium pointing to the umbilicus, and a yellow sallowness of the skin.

In some cases of persistent ague, these symptoms are very marked, especially the abdominal pain, and unpleasant color of surface; then nux vomica may cure when the antiperiodic treatment has failed. In some cases I give it alone, in small doses, as, ℞ Tinct. Nux Vomica gtt. v, Water ℥iv; a teaspoonful every one or two hours. It may be alternated with any other remedy indicated, and even with Aconite.

Alkaline Salts. There are cases in which the alkaline salts become prominent remedies, or even curatives. The *broad pallid* tongue is the indication, and when present I would never think of treating a case without the use of a salt, usually of soda.

Sulphite of Soda. We meet with cases showing distinct indications for this antiseptic salt. The tongue is *broad*, *pallid* and *dirty*, retrograde metamorphosis is defective, and the tissues look old and inactive. Sulphite of soda will frequently cure these cases, giving it in doses of from ten to twenty grains every three or four hours.

Acids. Whilst acids may not be curative alone, they will aid other remedies, or prepare the way for other remedies. The *deep red* tongue is the indication, and muriatic or lactic acid is the remedy.

Uvedalia. Among the wrongs arising from continued ague, none are so common and characteristic as enlargement of the spleen—*ague cake.* With this disease of the spleen, the ague will continue to recur despite all antiperiodic treatment. In some cases we find the liver enlarged, evident engorgement of the mesenteric glands, and sometimes general disease of the lymphatics. For this case Uvedalia is undoubtedly the specific. We use the ointment of Uvedalia as a local remedy, applied over the enlarged spleen or liver, or even over the entire abdomen. It is well to use heat with the application, covering the part with flannel, and passing a warm iron over it. The application should be thorough and repeated every day. Internally, we give it in doses of from one to twenty drops three or four times a day.

Chionanthus. We have the still more rare case of chronic ague associated with jaundice, and examination does not show incurable structural disease of the liver. The more common case is one of irritation marked by uneasiness in the right hypochondrium, and tenderness on pressure. In one such case, a radical cure resulted from the employment of the tincture of Chionanthus alone, in doses of ten drops every three hours.

Tonics. The advantage of a tonic treatment following the breaking of an ague has long been recognized, and good practitioners always examine the patient with reference to their need of this class of remedies. The bitter tonic improves the appetite, and gives better digestion and blood-making, and increases the power of the tissues to appropriate nutrient material, and in this way increases the resisting power of the body to disease. Many of these also improve innervation

through the sympathetic, and thus strengthen the vegetative functions of the body.

Restoratives. Restoratives are also of importance in many of these cases. There is the indication of a special want of some material in the body, and blood-making and nutrition will not go on well without it, or some organ or tissue can not be made without it. Thus there may be the want of phosphorus, of iron, of sulphur, of silica, as well as of soda or an acid, or food. It may be that the administration of a teaspoonful of the compound syrup of the hypophosphites after each meal, will be the one thing wanting to restore the resisting power of the body. Or a tablespoonful of cod oil may be the thing wanting to give right combustion and a normal temperature.

The Excretions. Physicians have also recognized the relation between excretion and ague—when excretion was deficient or otherwise changed, the ague would continue.

Our school of physicians have given more attention to the skin, and have placed remedies to increase its activity among the foremost. There are cases, certainly, in which the ague is perpetuated by a wrong of the skin. With a harsh and dry skin, it is almost impossible to effect a cure, as it is also with a soft and relaxed, doughy or an inelastic skin.

In addition to the usual baths for the different conditions of the surface, let me again call attention to the use of fatty inunction and quinine inunction. Frequently this seems to answer the purpose in both cases—where the skin is harsh and dry, and where it is doughy and inelastic and is one of our most efficient means of cure, I usually order a quinine inunction in the proportion of ℥ss to ℥i to the ounce of lard, and have the body thoroughly rubbed with it once or twice daily. *Thorough* rubbing is the expression, though a large quantity of the ointment need not be used, and if the skin is inclined to be greasy it may be rubbed clean with soft flannel.

Acetate of Potash. Golding Bird placed great stress on obtaining free excretion by the kidneys in these protracted agues, and he claimed that cures could be effected by the use of acetate of potash, when all antiperiodic means had failed. I know by experience that some of these old agues can be cured by the saline diuretics, and possibly some can only be cured by them. Take a case in which the tissues are inelastic

and sodden, and the renewal of tissue is slow, I should give a solution af acetate of potash in preference to all other means. From one to three drachms in divided doses *very largely* diluted with water, may be given daily and continued for one or two weeks.

Special Remedies. Physicians recognize other antiperiodics than quinine, but they must concede their inferiorty in the ordinary ague. The other alkaloids of the Peruvian bark, are now being used to a considerable extent, though in the main the only difference between these and quinine, is less cost. Other than these I do not know any remedies that can be classed with quinine as antiperiodics.

Boletus Laricis. The Boletus has been employed to a limited extent in the treatment of ague, and in some severe cases with good results But I cannot point out the special case to which it is applicable; we can only say that having a case in which the usual treatment has failed, and we cannot see a special indication for any of the means named, we may try this. I would give it in the following proportions: ℞ Tinct. Boletus gtt. x, water ℥iv; a teaspoonful every three hours, during the intermission.

Arsenic. Arsenic is in very common use as a remedy for ague, and sometimes exerts a remarkable influence in effecting a cure. But as ordinarily used, it sometimes exerts a remarkable influence in the opposite direction, which is quite unpleasant for the patient. Some of the patent "ague cures" contain arsenic, as for instance (I will not name them, as the proprietors are very sensitive on the subject). I have known a preparation of Euonymus, quinine and Fowler's solution of arsenic used successfully, but I cannot recommend it.

When I use arsenic it is in minute doses for its specific effect. Given, a chronic case of ague, with soft feeble pulse, lifeless inelastic skin, and tongue pale, small, and coated with slimy fur, I would think of the arsenical pellets. Take of the medium-sized Homœopathic pellets sufficient to fill an ounce bottle half full, drop on them five drops of Fowler's solution of arsenic. Shake them well together, and when dry we have the *small* quantity. Ten of these may be given every three hours. It is well to say that the indications for the *large* and *small* dose of arsenic in the treatment of chronic intermittents are just the opposites of one another.

Carbazotate of Ammonia. In 1872 Dr. Dujardin-Beaumetz introduced a new salt—carbazotate of ammonia—as a substitute for quinine, and reported a number of cases in which it proved curative. In 1873 it was brought to my notice, and I used it in a couple of cases. Notices of it were published in the Journal of 1873 and 1874, and H. M. Merrill & Co. had it prepared in sugar-coated pellets so that it could be administered easily. Quite a number of physicians experimented with it, and those who reported, reported favorably, and it is still ordered in some sections.

It was claimed for it that in a quantity of from one-fourth to one- half grain, given in divided doses during the intermission, it would exert the same curative influence as ten grains of quinine. It is prepared in pellets of 1-16 to 1-8 grain, sugar-coated, and though intensely bitter it is thus easily dispensed. I would advise a trial of this remedy in both recent and chronic cases.

Nitric Acid. Among the positive remedies used in the cure of protracted ague we must not forget Nitric Acid. The indication is very distinct, a violet coloration of the tongue, and more slightly of any part where the circulation shows free. In the typical case the violet color is transparent—seeming like a glaze on the tongue—it is never a dull, solid color.

In these cases I prescribe, ℞ Nitric Acid gtt. xx, Water, Syrup, aa. ℥j; a teaspoonful every three hours.

COMPLICATIONS.—It may be remarked in conclusion that sometimes a complication of functional or structural disease will continue the ague, in the same way that the malarial poison will continue a local disease. Thus I have known an ague continued by amenorrhœa, by dysmenorrhœa, and by menorrhagia, as I have by disease of kidneys, bladder, urethra, or other structure. It is safe in all cases to take it for granted that this is the fact, and in intractable agues associated with local or functional diseases, to adopt a treatment for their cure.

Lastly, it may be said, whenever there is a special indication for any remedy, it will prove a remedy in ague, as it would in other disease. It may be preparatory for the use of the antiperiodics, associated with them, or it may cure alone. This advice is therefore given, to examine each patient carefully with reference to symptoms calling for special remedies, and to use remedies thus indicated.

REMITTENT FEVER.

BILIOUS FEVER.

Remittent Fever, differs from the Intermittent, in that it consists of but one perfect revolution of the disease, the hot stage being greatly prolonged, but exhibiting well marked remissions and exacerbations. Like intermittent fever, it is supposed to be caused by what is generally termed marsh malaria, though there is no doubt but that sudden atmospheric vicissitudes and changes of temperature, by arresting secretion, impairing nutrition, and lessening the vital power of the individual, may form a cause of the disease. It occurs principally in the fall, though many cases are seen through the summer, and even during the entire year. It also differs much in its character, being mild in high and temperate regions, and severe in low, marshy, and warm countries.

SYMPTOMS.—The *forming stage* usually occupies some days, the symptoms being gradually developed. At first, there is nothing but a feeling of weariness, especially upon slight exertion. This languor increases, and is accompanied with listlessness, or indisposition to make any exertion; the appetite becomes capricious, with a bad or bitter taste in the mouth; tendency to nausea, with, sometimes, vomiting; the bowels are costive, and skin dry, and more or less pain and heaviness in the head, with, frequently, pain in the back and limbs.

Cold Stage.—The attack is sometimes ushered in by a well marked chill or rigor, closely resembling the cold stage of an intermittent. Frequently the chill is very slight, and again, merely a sense of coldness; or slight chilly sensations pass over the body, which, after a short time, are succeeded by flushes of heat; these alternate, the chills become less and less marked, until, finally, febrile reaction is set up. In some cases, especially those in which the chill is marked, nausea comes on, and finally vomiting, about the time reaction sets in. Sometimes there is some pain in the back and limbs during this stage of the disease. The cold stage usually lasts but a short time, one or two hours, but is occasionally protracted.

Hot Stage.—When reaction ensues, the pain in the back, head and limbs, increases, being in some cases extremely severe.

The temperature of the surface is markedly increased, the skin being dry and constricted, the face flushed and turgid, and the eyes red and suffused. The pulse is full and frequent, rarely tense, and the respiration hurried and uneven. The tongue is covered with a yellowish-white fur, with, frequently, a disagreeable taste in the mouth, and more or less nausea, with oppression and pain in the epigastrium, and in many cases, severe and protracted vomiting of bilious matter. All the secretions are checked—the bowels costive, and the urine scanty and high colored, sometimes loaded with bile, which gives it a yellow tinge. The nervous system, in many cases, is considerably deranged, the patient being watchful and very restless. There is rarely delirium in the first exacerbations, more frequently a marked dullness and torpor.

These symptoms continue from eight to twenty hours, when they gradually pass off; the heat of the surface is diminished, with frequently slight perspiration about the neck and face; the pulse is not so frequent; the pain in head and back ceases, and the patient feels comparatively comfortable, and sometimes takes a refreshing sleep. This constitutes the period of *remission*, which, in a majority of cases, occurs once in twenty-four hours; usually in the morning, though in some there is two per day; in others, a more complete remission occurs every second or third day.

This remission varies greatly in its duration and completeness in different cases: in some it is long and amounts almost to an intermission; in others, it is short, and the febrile symptoms but slightly abated. Following it, the febrile symptoms reappear with all their first intensity, and the hot stage continues to the end of the disease, in a succession of exacerbations and remissions.

In some cases of this fever, we do not observe that the febrile reaction becomes more intense as it progresses; but in others, each succeeding exacerbation is more marked, the remission shorter and less noticeable, until finally, the fever is nearly or quite continuous. The irritation of the stomach often continues for two, three or four days; in some cases, through the entire disease, if not arrested by remedies.

As might be supposed, the patient's strength fails day by day, innervation and secretion become more and more impaired, until by the seventh or eighth day we find him in one of two

conditions. The fever having lost its original type, has become an adynamic continued fever, with typhoid symptoms. Or the patient's strength having become greatly exhausted, we observe a want of reactive power; there is a tendency to congestion during the remission, at which time the surface becomes cool, sometimes covered with a clammy perspiration; the pulse is small, weak, intermittent, and respiration short, quick, and difficult; coma makes its appearance; the patient lies upon his back, slips toward the foot of the bed; there is a jactitation; picking of the bedclothes, and after one or more unsuccessful attempts at reaction, the patient dies. In this last case, the disease terminates fatally as a remittent; this, however, is a rare termination, for if not arrested during the first week it generally assumes a continued form, and presents all the symptoms of a continued fever.

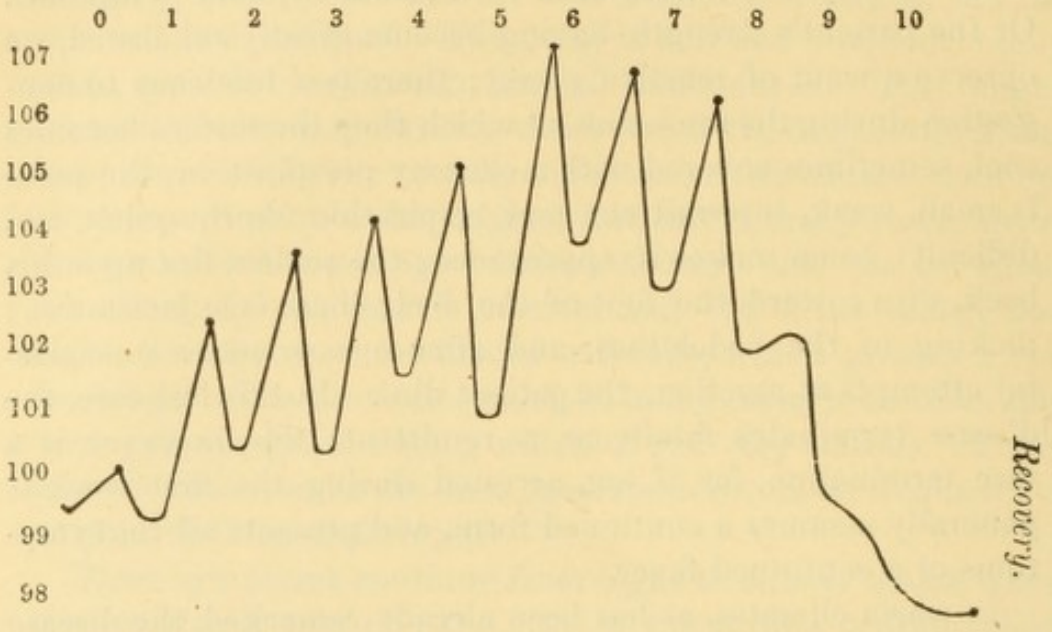
In warm climates, as has been already remarked, the disease is more intense. When reaction comes up the skin is intensely hot, dry, and husky; the eyes suffused, of a muddy yellowish hue, often dull and languid; there is intense pain, and sense of insupportable weight in the head, with frequent extreme pain of back and extremities; the pulse is quick, frequent, more or less tense, and the respiration hurried and difficult. If the disease is not arrested early, the remissions disappear, the skin becomes dry and rough, or moist and clammy; the tongue black and crusted, with much irritation of stomach; the pulse small and irregular; low muttering delirium comes on, and the patient dies.

The Temperature in Remittent Fever.—The majority of persons are surprised when they compare the diagram of the temperature in a case of remittent fever with one of typhoid fever, that there is so small a variation in the diurnal rise and fall. It is but the difference of one or two degrees in the morning, or when the remission takes place.

By reference to the diagram, it will be noticed that the day prior to the chill shows an increased temperature of one to two degrees; and that at the period of chill, the thermometer shows 99½°. It illustrates the gradual accession of fever—102½, 103½, 104°—until the fifth day it attains 107°. Of course the temperature varies in different cases, as the other symptoms vary, but it follows the outline above given.

As in the preceding cases; we find that a remittent fever be-

RANGE OF TEMPERATURE IN A CASE OF REMITTENT FEVER—THE REMISSIONS OCCURRING IN THE MORNING.



comes severe and stubborn, just as the wave line is shortened; in other words, just as the temperature of the remission is increased. A high range of temperature during the exacerbations, the thermometer marking 105° to 108°, is a very *active* fever, but if, during the remissions, the temperature falls to 101°, the disease is not dangerous, and is readily arrested by remedies. On the contrary, if the morning temperature, after the first two or three days, shows a continued increase—say 102½, 103, 103½°—the case is a severe one, even though the temperature of the exacerbation does not pass above 104° or 105°.

COMPLICATIONS.—Remittent fever is frequently rendered difficult to treat by the existence of some local affection. Irritation of the stomach and duodenum is probably the most frequent complication; the symptoms are, continued nausea and vomiting, tenderness on pressure over the epigastrium, with a feeling, frequently, of insufferable oppression in that region. Determination to the brain is also met with in the severer forms of the disease; indicated by, first, symptoms of cerebral excitement, followed by stupor, low delirium and coma. Disease of the liver is also of frequent occurrence in warm climates, most frequently manifested by symptoms of irritation, and increased secretion of acrid bile, which produces irritation of the bowels; but sometimes of congestion, the secretion being arrested. Various pulmonary affections are met with in this

disease, especially bronchitis and pneumonia, of a congestive form.

Post-Mortem Examination. — The liver has usually been found injected, softened, of a dark color and friable; the spleen enlarged and softened; the digestive mucous surfaces dark, discolored, ecchymosed, softened, sometimes thickened, or ulcerated. The blood is dark, fluid, and more or less broken down, and if the disease has been severe, frequently extravasated into the tissues.

Diagnosis.—The character of the fever is easily determined after it has made one revolution, the remission recurring daily, serving to mark the diagnosis; still we frequently find cases in which, from some complication,or the original severity of the disease, the remissions are very obscure, when the diagnosis will be difficult. The *prognosis* is generally favorable.

Treatment.—In this, as well as in other diseases, it is of the first importance that any derangement of the stomach and bowels should be immediately corrected. If there is redness of the tip and edges of the tongue, with tenderness on pressure over the epigastrium, counter-irritation, with agents to quiet irritation of the stomach would be indicated, as an infusion of Peach Bark or of Compound Powder of Rhubarb and Potash. I have found the irritation of the stomach and bowels yield in some cases to Aconite and Ipecac in the usual small dose.

If the tongue is heavily coated from base to tip, with a sense of fullness in the epigastric region, it is best to give an efficient emetic. Ipecac will serve the purpose in ten grain doses every few minutes, or the Acetous emetic of the dispensatory may be given in teaspoonful doses every ten minutes until free emesis occurs. Plenty of warm water or some stimulant infusion renders emesis easier and more thorough. If there is pallor or sallowness of the lips, with some gastric or abdominal pain, minute doses of Nux will give relief. In some cases water as hot as it can be taken will stop vomiting or relieve nausea.

As sedatives we use Aconite or Veratrum, gtts. x, to water ℥iv, adding Rhus, Gelseminum, Bryonia, etc., as indicated.

Administered in teaspoonful doses every hour, or half hour, until the desired result is produced. If an emetic has been administered, we find that continuing it in small doses, with the use of the hot foot-bath, and alkaline sponge bath, will produce indirect sedation and answer in place of the direct sedatives just named. Or sedation may be effected by the use of the vapor, or spirit-vapor bath, and the stronger diaphoretics.

The means just named will mitigate the sufferings of the patient, shorten the febrile exacerbation, and occasion a longer and better remission. As the fever commences to decline, we resort to mild diaphoretics, as the Compound Powder of Ipecac. and Opium, Asclepias, etc., and the saline diuretics, as the Acetate, Citrate, or Nitrate of Potash, to increase secretion. During the remission, it is desirable to administer a sufficient amount of some antiperiodic to arrest the disease. Quinine is the most efficient agent. It may be combined with the Prussiate of Iron, as in intermittent fever. It is usually better to commence its administration as the fever is declining; divide the amount necessary into three doses, and give them two hours apart, so that the last one will be taken at least half an hour previous to the expected exacerbation. The sedatives, diaphoretics, and diuretics, should be continued through the remission.

If the fever again rises, we stop all but the special sedative, continuing it until the fever commences to decline, then commence again with agents to promote secretion, and an increased dose of the antiperiodic in the remission. Opium, to induce sleep, is indicated, when the patient's rest has been broken. In some cases, three, four, or five revolutions of the disease will be made, before we are able to arrest it, but we notice, even in this case, a perceptible mitigation of the disease from the treatment.

In some cases, there is great torpor of the bowels, even when the stomach is irritated, and the retention of fæcal matter and arrest of secretion increases the intensity of the fever. A mild but thorough cathartic will be beneficial, sometimes relieving the irritation of the stomach as soon as it operates. In the progress of the disease cathartics are not generally useful, but the bowels should be kept in a soluble condition by the administration of gentle laxatives.

TREATMENT OF SEVERE CASES.—We will find that remittent fever is rendered severe by certain complications which may be diagnosed early in the progress of the disease, and which may be met with remedies. The principal of these are, of the digestive tract, of the blood, and of the nervous system.

In some cases, we will find the patient complaining of a feeling of fullness and weight in the epigastrium, a bad taste in the mouth, disgust for food, drink and medicine, and on examining the tongue, find it heavily coated at base. In such cases the treatment should be commenced by the use of a thorough emetic, and this followed by a mild cathartic or laxative. Afterwards it will be conducted as heretofore named.

Irritability of the stomach is marked by the elongated and pointed tongue, with reddened tip and edges. There is nausea with retching, and the patient can take neither food, drink or medicine with comfort. Remedies exert no influence in controlling the disease, because they are not absorbed. Whilst the irritation continuing, causes increased derangement of the circulation, irritation of the nervous system, and further arrest of secretion.

It is essential then, that this condition should receive our first attention, and that it be removed as early as possible. In many cases, we will find that the use of small doses of Aconite, as:

℞ Tincture of Aconite, gtt to x.
Water, ℥iv. M

Giving a teaspoonful every hour; a cold wet pack over the epigastrium, frequently renewed, and an enema of salt-water, to the extent of moving the bowels, aided by the use of the bath to lessen the temperature, and entire rest, will, in a couple of days, make a marked improvement in the gastric symptoms. Now the ordinary treatment may be pursued, being careful to avoid remedies likely to re-excite the irritation.

If the means named are not sufficient, we may use in addition—an infusion of peach bark; the officinal Hydrocyanic Acid, gtts xx. to water ℥iv., a teaspoonful every hour; or Bismuth, either the sub-nitrate or the solution.

A *pallid* tongue, with *white* or *dirty-white fur*, indicates acidity, and a condition of atony of the digestive tract, that will prevent digestion, or the absorption of remedies; and will facilitate the process of sepsis in the blood. In this case the first prescription is an alkali, either simple bicarbonate of soda, or

sulphite of soda, if there is need of the antiseptic influence. Using the first, I generally add it to fresh water in such quantity as to be pleasant, and give as much as the patient wishes. Those who have never employed the alkalies in this condition will be surprised at the certainty of their action.

In some of the severer cases, we will notice early in the disease, that the mucous membranes and tongue are of an unnaturally *deep-red* color. As the disease advances, the coating of the tongue becomes brown, and typhoid symptoms are rapidly developed. We regard the symptoms as pointing to an alkaline condition of the system. In this case we put the patient upon the use of acids, and continue their use as long as the indication remains. I prefer the mineral acids, and generally use the following formula:

℞ Dilute Muriatic Acid, ℥ss.
Syrup, ℥jss. M

A teaspoonful in sufficient water to make a pleasant acid drink every two hours.

Irritability of the nervous system with sleeplessness, rapidly exhausts vital power; as it intensifies all the febrile symptoms. In the early stage of the disease, if the febrile action is high, I give Gelseminum with Veratrum, in full doses. A general bath in the evening, with a hot mustard foot bath for at least thirty minutes, the head and face being sponged with cool water, will generally give sleep.

At an advanced stage of the disease, the circulation being under the control of the sedatives, I would meet the *sleeplessness*, that is sometimes so obstinate, by the use of Quinine with Opium. Prof. King's prescription answers an excellent purpose in many cases:

℞ Quinine, grs. vj
Diaphoretic powder, grs. xxx. M

Divide in six parts, and give one every four hours. In place of this we might use:

℞ Sulphate of Morphia, g. s. j
Camphor, grs. vj.
Quinine, grs. vj. M

Divide in six parts; give one every four hours.

In some cases we find the patient listless and dull, with a tendency to doze. The eyes are dull, the pupils are dilated, or do not contract readily on exposure to light, and the countenance has lost its usual expression. If these symptoms are marked in the early stages, there will be a low, muttering de-

lirium or coma by the end of the first week. In this case I put the patient upon the use of Aconite with Belladonna in the usual doses, selecting the other treatment with reference to the symptoms as above named.

In the severer form of the disease, at an advanced stage, the remissions are almost effaced, and in addition to the loss of strength, we have that class of symptoms known as *typhoid*, indicating degeneration of the blood. The same condition results from bad treatment in simple cases.

Here the objects of treatment are:—To sustain the strength of the patient; to improve innervation; to arrest septic decomposition; to increase secretion. And, finally, by these means, to bring the disease back to its original type, and administer antiperiodics.

Evidently the first thing to be done is to place the stomach in condition to receive and digest food. In a large majority of cases one of two conditions will be present—the tongue will be *dark-red*, and covered with a brownish fur; or it will be *broad*, *pallid*, and covered with a dirty-white fur.

In the first case I would prescribe the mineral acids, and in the form heretofore named, giving it as freely as desired by the patient. With this, to stimulate the digestive tract, we might associate small doses of Nux Vomica or Strychnia, as in the following formula:—

℞ Tincture of Nux Vomica, gtt. x.
Compound Tincture of Lavender, ʒss.
Tincture of Lobelia, gtts. xx
Simple Sirup, ʒiiiss. M

A teaspoonful every one or two hours.

In the second case I would give the Sulphite of Soda, in doses of grs. xx. every three hours, and Quinine with a minute dose of Morphia as the tonic.

The tincture of Aconite, in small doses, should be regularly given in both cases, every hour.

A proper selection of food is here of great importance. I prefer milk, having it boiled, seasoned, and given hot. If milk can not be taken, *whey* answers a very good purpose, and if this is objectionable, any of the different forms of *farinaceous* food with milk. Beef tea and animal broths are not the best kinds of food, as we want *calorifacient*, not *histogenetic* material. The only exception to this is, when there is marked feebleness

of the heart and respiratory muscles, when essence of beef becomes an important remedy.

To increase innervation, we have already the nerve tonics, Nux Vomica and Quinine. In some cases, we will find that Quinine inunction will answer an excellent purpose. When the patient is wakeful, we employ the means heretofore named.

To check the sepsis of the blood, we have the two classes of remedies already named—the mineral acids and the antiseptic salts. In place of the Sulphite of Soda, any of the soluble sulphites may be used, or we may employ the chlorates, or in some cases minute doses of Carbolic Acid. When there is an unnatural fetor from the body, a bath of a dilute solution of Carbolic Acid removes it, and exerts a pleasant stimulant influence upon the skin.

It is generally thought that when by the above means, we have brought the disease back to its remittent character, full doses of Quinine are indicated. In some cases the antiperiodic acts kindly, but as a general rule it is well to let the patient convalesce without it; for if more slow, it is also more certain.

CONGESTIVE OR MALIGNANT REMITTENT FEVER.

This form of remittent fever occurs most frequently in the South and Southwest, and sometimes proves extremely fatal. It is characterized by marked adynamia, congestion of important organs being its prominent feature.

SYMPTOMS.—The *cold stage* is usually short and not very severe, but the patient is dreamy and drowsy; the countenance is somewhat swollen, the look is vacant; the respiration oppressed and labored, and the pulse small and scarcely to be felt. There is, frequently, nausea and vomiting, with faintness, and sometimes diarrhœa.

Reaction comes up slowly, the pulse being small and weak, though frequent, and the anxiety and sense of weight at the præcordia increases. The temperature of the surface is but little increased, and that only about the trunk, the extremities being frequently cold. During the *remission* the pulse becomes very feeble and slow, the surface cold, the extremities livid, and the patient covered with a clammy perspiration. There is great torpor, the patient being aroused with difficulty, fre-

quently coma makes its appearance during the first remission. These symptoms of congestion increase at each remission, until, finally, reaction can not be accomplished, and the patient dies. This has been termed the cold plague.

Again, there are cases in which the first reaction is extremely violent, the pulse is corded and frequent, the skin is hot, dry, and husky, great thirst, entire arrest of secretion, excruciating pain in the head, back and limbs, dyspnœa, and distressing oppression at the epigastrium. A short remission occurs, when again the febrile reaction comes on with increased intensity. This continues for two or three days, when a remission like that described above occurs, marked by great congestion, and consequent oppression of the vital powers, from which the patient never reacts, but dies in the stage of remission.

Treatment.—In the first case named, it is all important that such means should be used as will speedily remove congestion, equalize the circulation, and overcome the depressed condition of the nervous system. A stimulant emetic has been employed at first by many of our practitioners in the South with advantage. An infusion of Compound Powder of Lobelia and Capsicum, is administered with simple Capsicum or Black Pepper tea, the last being considered preferable. Emesis should be thorough and prompt, when it is almost always followed by normal return of circulation to the surface and extremities. The emeto-cathartic action of Podophyllin is very certain to arrest the tendency to congestion, and were its influence not so unpleasant, and attended with such prostration, it might be recommended. At the same time the entire surface should be sponged with a decoction of Capsicum in vinegar, and heat applied to the patient warmly covered in bed. If further stimulation appears necessary, Tincture of Xanthoxylum, Compound Tincture of Cajeput, or brandy punch is freely given. Counter-irritation to the spine is especially indicated, and sinapisms should be applied to the surface over internal organs that are suffering most from congestion. These means are preparatory to the administration of Quinine, which should be given in doses of at least five grains every three hours until innervation is completely re-established, when the case is treated as a common remittent fever.

Unless the emetic is so used as to obtain its full influence, it will do harm rather than good. Many persons, fearful of too great an action, give it only to nausea and retching, and favor the ejection of the remedy as fast as given. What we want is, to give the preparations of Lobelia in small doses, frequently repeated, without much nausea, until a large quantity is absorbed; then we have its influence from the blood, and the act of emesis, which is but its culmination, is very thorough, yet easy. It is from such action as this, that we get the full, soft pulse, an equal circulation in all parts of the body, relief of the nervous system, and restoration of the secretions.

Instead of the emetic as described, and much rather than its improper use, I would trust to the action of Belladonna in overcoming the tendency to capillary stasis. The prescription would be:

℞ Tincture of Belladonna, gtt x.
Tincture of Aconite, gtt. x.
Water, ʒiv. M

A teaspoonful every hour.

This would be aided by the use of the Sulphite of Soda in doses of grs. xx to grs. xxx, every three hours, when the tongue was broad and pallid, with pasty white fur, (the most common condition); or the use of dilute Muriatic Acid, when the tongue was of a dusky-red color. In the first of these cases, I would have the patient thoroughly sponged with salt-water; in the second, with acidulated water, strong enough to be slightly stimulant, or with the Carbolic Acid wash heretofore named.

After the disease has progressed for two or three days, the baths had better be dispensed with, and *fatty inunction* used instead. Stimulants may be used with the inunction, or if need be, Quinine can be thus employed.

In the second instance, the high reaction is controlled by Veratrum, and the extreme irritation of the cerebro-spinal centers, by counter-irritation, and the administration of Tinctures of Gelseminum and Macrotys. The antiperiodic in this case must be given in large doses, and will have to be commenced immediately after the fever commences to decline; half a drachm of the agent is usually considered about the amount necessary.

In all other respects this fever should be treated as heretofore named for the severer forms of remittent. If the emetic

is employed, and it acts kindly and thoroughly, it will break up the congestive character of the disease, and we will have but a simple remittent to treat. So in other cases, we find that the tendency to congestion readily yields to the specific action of Belladonna, and the disease is managed without difficulty.

YELLOW FEVER.

Yellow fever is a disease of warm climates, prevailing principally in the torrid, and southern part of the north temperate zone. It is evidently closely allied to remittent fever, as it prevails in those sections, and those only, which are regarded as malarious. It makes its appearance in an epidemic form, in the latter part of summer, and ceases its ravages with the first frosts. For its production it appears to be necessary, that the causes of vegetable malaria shall exist with intensity; that there shall be more or less decomposing animal matter, with a high range of heat for many days consecutively. Certain sections of country appear to possess all the elements for the generation of the disease, and hence it makes its appearance with great regularity at such period of the year, as gives the necessary high and long continued heat for decomposition.

Persons who have long resided in those sections, have usually an immunity from the disease, which is doubtless owing to such gradual change in the constitution as enables it to throw off the malarial poison; such persons are said to be acclimatized. Persons from the north, or sections free from these malarial poisons, residing in a country where yellow fever prevails, are most liable to the disease. It is generally admitted that it is not contagious, at least not more so than other fevers where decomposition is speedily set up after death, or even before dissolution, as in *typhus*, and some cases of typhoid fever. There can be no doubt that the emanations from such persons are poisonous to those whose vitality has been impaired, and that if absorbed they will give rise to adynamic fever.

Symptoms.—Yellow fever may be divided into three stages, which in many epidemics are well marked, but in others are indistinct. These are, first, a stage of primary fever, lasting

from thirty to seventy hours; second, a stage of remission; and third, a stage of collapse.

First Stage.—This stage is sometimes preceded for some hours or days, with the usual prodromal symptoms of fever. Languor, listlessness, failure of appetite, and more or less pain in head, back and limbs. Chilliness precedes febrile reaction in a majority of cases, though a well marked cold stage is rare. With the development of febrile reaction, the skin becomes hot, dry, and harsh; the urinary secretion is arrested, and the bowels are obstinately constipated. The patient suffers severely with pain in the back, limbs and head, and is extremely restless and uneasy. Much irritation of the stomach exists from the first, with pain and sense of oppression in the epigastrium; in a majority of cases vomiting speedily comes on and continues through this stage—the retching and ejection from the stomach being painful and difficult. The eyes are generally suffused, reddened, and very sensitive to light, presenting the appearance that would follow exposure to wood smoke; this has been looked upon as almost a pathognomonic symptom by some. The pulse varies greatly in different cases; in many it is hard, quick, and irregular; in others small, corded and oppressed, and in others not different from what it would be in a simple remittent. The tongue hardly ever presents the same appearance; sometimes clean, again broad, flabby, and covered with a thin white coat; again reddened at tip and edges, pointed, and coated in the center; and again presenting a thick yellowish, or yellowish brown coat. As before remarked, this stage varies in duration, and there is just as much variation in its intensity.

Second Stage.—The febrile action gradually abates; the vomiting ceases, or is less constant; the pains are much ameliorated; the skin becomes softened, and frequently covered with perspiration. The patient feels comparatively well, though exceedingly debilitated, and has hopes of speedy recovery; and yet, even now, may be noticed that yellowish discoloration, manifesting itself in the conjunctiva, and the skin of the forehead and breast, the precursor of that third stage, from which it is so difficult to recover. This remission, sometimes so complete, can hardly be noticed at others, but the first rapidly passes into the third stage, or collapse. It is always of short duration, not more than from two to ten hours.

Third Stage.—In this stage the pulse becomes very feeble, and the prostration is excessive; the yellow appearance of the skin, which gives the disease its name, becomes plainly visible and continues to deepen as the disease advances. The irritability of the stomach is excessive; nothing can be retained, but the vomiting now is easy. The material ejected from the stomach is peculiar, being very dark colored, and hence known by the name of black vomit: this dark colored material has been determined to be broken down blood. Diarrhœa frequently ensues, the discharges from the bowels resembling that ejected from the stomach. The respiration is hurried and difficult, with frequent sighing, and the patient complains of an intolerable oppression and distress at the præcordia. The powers of life rapidly fail; slow delirium or coma comes on, and death soon eases the patient from his intolerable suffering.

POST-MORTEM EXAMINATION.—The scalpel invariably reveals *necræmia*, or death of the blood; other lesions are but incidental, or the result of complications. Sometimes the liver is enlarged, congested or softened, but at others it is contracted and brittle; the lungs are occasionally engorged, and blood is extravasated into their structure; the brain is generally harder than usual, but the dura-mater has been found studded with small spots of coagulated blood, and the arachnoid covered with a deposit of coagulated lymph. The most common lesion of the solids is softening of the mucous membrane of the stomach and bowels, with frequent dark discoloration.

DIAGNOSIS.—According to the statements of all authorities, it is extremely difficult, if not impossible, to distinguish yellow fever from the severer forms of remittent fever, in the first stage. Yet the prevalence of the disease as an epidemic in that locality, is considered sufficient cause to adopt a treatment suitable for its arrest, in every case presenting the symptoms named. The subsidence of the fever after the exacerbation has continued more than twenty-four hours, is a prominent evidence of the disease; the commencing yellow discoloration of the skin, great prostration, and finally vomiting of dark colored material, renders the diagnosis beyond cavil.

PROGNOSIS.—By our physicians in the South, the prognosis is considered favorable, if the patient is seen during the first stage; but if the disease has progressed to the third stage, the prognosis is considered unfavorable.

TREATMENT.—I am satisfied that the old methods are worse than useless, and that if treatment is to be satisfactory the remedies must be selected by specific indications. As in other diseases these will vary in different cases, so that one does not prescribe at *yellow fever*, but for the conditions of disease he finds in the present case.

It is true that the law of epidemic influences holds good as it does in other wide spread diseases, and that when one has determined a successful treatment of the beginning of an epidemic it will probably hold good through it.

I confess the difficulty of writing the treatment of a disease which I have never seen, and I can only say that what I write is the result of others experience.

Aconite is a prominent and most valuable remedy in this disease. In the commencement it relieves nervous irritability and chill, strengthens the circulation, and tends to allay irritation of the stomach. I know of no better remedy for chill. It may be combined with Nux or with Ipecac for the relief of gastric irritation, or with Rhus during febrile reaction.

Ipecac is a prominent remedy for the relief of gastric irritation if the tongue is very red.

Nux replaces ipecac if there is abdominal pain with pallor or sallowness around the mouth and pallid, expressionless tongue.

Camphor is a remedy our homœopathic friends have relied upon to relieve gastric irritation and the great nervous depression.

Colocynth is indicated by pains below the umbilicus of a griping character.

Veratrum will replace Aconite when the febrile action is high and the pulse is large and hard.

Rhus should be associated with the sedative when there is intense frontal pain and *sharp* pulse.

Gelseminum is the remedy when the face is flushed, the eyes bright and the pupils contracted, the pain in head general.

In the second stage the patient should have Quinine by hypodermic injection, or if very much depressed Strychnia may be substituted, or the two used together.

The bowels are best moved by large enemas of hot water during the period of chill, or cold salt water if febrile action is high. The enema should be *large*, and thrown up high, enough to give a thorough evacuation. The nursing and food may be as named under the head of remittent fever.

After this the treatment will have to be conducted on general principles, meeting the indications as they arise. The stomach must be kept quiet, diarrhœa arrested if it appears, the patient's strength kept up by the judicious use of stimulants, and nutritious but easily digested food, and especially most normal circulation in the skin and extremities be maintained, and free secretion from the kidneys.

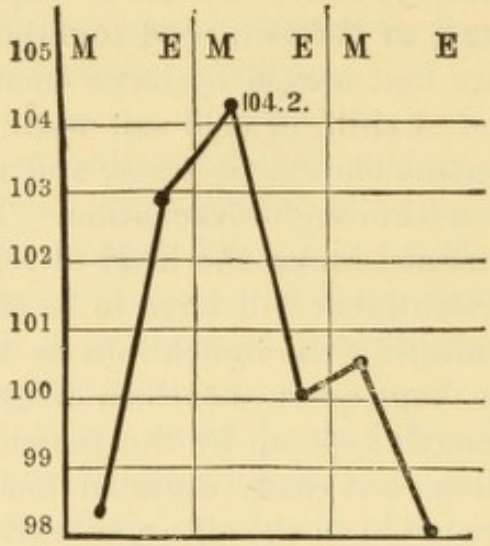
FEBRICULA.

The errors in the diagnosis of fever are remarkable, to say the least, especially in the tendency of every thing that shows febrile reaction to take the name of typhoid. With many it is an honest error in diagnosis; with more the name is employed to designate fevers of various grades and kinds, because it is thus used by competing physicians; and with some it is used because the word *typhoid*, in the public estimation, is the name of a grave disease, and the physician gets much credit for curing it. Whatever may be the reason for thus taking the name of "typhoid" in vain, self deception is of no advantage, and *we* want to know the distinctive diagnosis between it and other forms.

In malarial regions *periodic* fevers are the rule; in non-malarial regions, in the majority of years, the disease is *evanescent fever*, or, as it has been lately described, febricula. Of this we have two varieties: one which may be strictly termed *evanescent*, passing off by the third or fourth day; the other *protracted*, and which terminates from the sixth to the ninth day.

The following diagram, it will be observed, reads differently from those in other fevers. Commencing in the morning with a slight chill, the temperature rapidly ascends to 103°, but instead of falling through the night, as in other cases, it is 104° the next morning. Then there is the gradual decline through

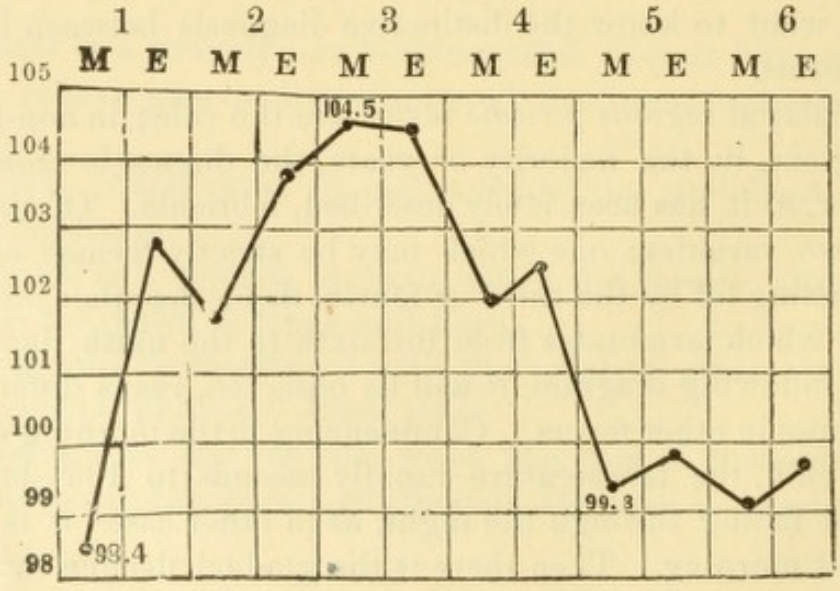
TYPICAL RANGE OF TEMPERATURE IN A CASE OF FEBRICULA. THE RECORDS INDICATE MORNING AND EVENING OBSERVATIONS. (Wunderlich.)



the day to 100°, the slight increase through the night, and entire subsidence of febrile symptoms on the third day.

Any one that has suffered from this evanescent fever will see that the diagram is a correct index of his sensations. Commencing in seeming perfect health, there is a chill, with febrile symptoms increasing through the day; then follows a restless night, the person suffering from head ache, pain in the loins, and a burning fever—the broken sleep being attended with unpleasant dreams; the feeling of exhaustion in the morning; the gradual improvement during the day; the second uncomfortable night, but not near so bad as the first; breakfast on the third morning, followed by a pleasant feeling of relief and rapid convalescence.

RANGE OF TEMPERATURE IN A CASE OF PROTRACTED FEBRICULA. (Wun.)



In this diagram the fever takes a slightly different course. The elevation of temperature the first day is about the same, but the patient passes a better night, and the morning temperature is below 102°; there is then a continued increase during the day to 104°, and a bad night, carrying it up to 104½° the next morning. During the third day the patient is very sick, and suffers more than in the grave forms of fever, the temperature continuing uniform. Then we notice the marked decline on the fourth day, and the low range of temperature from that until the entire subsidence of the disease.

CAUSES.—The common cause of febricula is cold, especially such exposure as causes cold, following prolonged and severe exertion. Arrest of secretion from other causes, will also give rise to this fever; thus it will be produced by checked perspiration, scanty urine, and constipation with arrest of secretion. From whatever cause it may arise, there is evidently a material in the blood which should be removed by excretion, and when removed the fever ceases.

DIAGNOSIS.—To many persons, the diagnosis of febricula is difficult. The patient makes so much complaint, and some of the febrile phenomena are so pronounced, that the tyro imagines he has a grave disease on his hands. Probably there is no other fever which in the first two days runs so high, and occasions so much discomfort. The reasons for this are: that the system is in nearly a normal condition, and it feels more acutely the excitement of the febrile state.

We may sum up the points of diagnosis between febricula and the severer forms of fever, as follows: In the febricula the fever is rapidly developed, and there is great nervous excitement and undue complaint; but though the pulse is increased in frequency to 100 or 120 beats per minute, there is no hardness or other change in its character; though the patient complains of *burning* with fever, and the thermometer shows an elevation of temperature, at the highest point, 104° to 105°, the skin is not dry, or harsh, and gives no unnatural sensation to the hand besides heat. There is not the arrest of secretion that we find in other fevers. The tongue presents its natural redness, the coating being a clear white, or, if there is torpor of the bowels, a yellowish fur. In the more persistent forms,

on the contrary, the pulse is hard, or otherwise changed, the skin is dry and harsh, urine high colored and scanty, the tongue shows a more marked change in its color and coat, and there is greater derangement of the digestive apparatus.

Though the patient does not make as much complaint, yet there is much greater loss of strength, as well as of functional disturbance.

COMPLICATIONS.—We find febricula associated with catarrh, with simple sore throat, with headache, with irritation of the larynx and a degree of aphonia, with bronchial catarrh, with irritation of the lungs, and with gastro-intestinal disease.

PROGNOSIS.—It is because there is *no* danger in this form of fever, and that it will terminate in a short time in health, without medicines, that we are so particular in its diagnosis. There is no doubt that a fatal termination could be brought about by the use of medicines, and there is none that this result has been frequently obtained by those known as antiphlogistics. The judicious use of these harsher remedies will, at least, change the simple fever into a complicated disease, which, if it does not kill, will allow the physician to make a good bill.

TREATMENT.—Here the treatment will be according to the indications present. Aconite or Veratrum will be the sedative as the pulse is small or large. Rhus will be added if the patient complains of frontal headache. Gelseminum if the face is flushed and the headache general. Belladonna if the headache is dull or the patient stupid and sleepy. Bryonia if there are chest pains and a cough. In some cases with pallid, heavy coated tongue, Sulphite of Soda is given in ten grain doses every three hours until the tongue clears. If the tongue is simply pallid the Bicarbonate of Soda may be used instead. If the urine is scanty and high colored the Acetate of Potash is a very useful remedy. With the subsidence of the fever small doses of Quinine may be used.

In any case, if the secretions are not established as the sedative exerts its influence, we employ diaphoretics and alkaline diuretics. In those cases, in which the tongue is markedly furred, a mild cathartic of Podophyllin well triturated, will advantageously precede the treatment.

I admire the action of the *cold wet-sheet pack* in this case, and in my own person would prefer it to other means. Though the first sensation of cold water is unpleasant, there soon succeeds a comfortable warmth, relieving the excited nervous system, and giving a degree of comfort that repays the first suffering. Secretion is soon established, and convalescence is rapid.

SYNOCHAL FEVER.

SIMPLE INFLAMMATORY FEVER.

It is exceedingly difficult to mark the dividing lines between the three divisions of continued fever, generally recognized by the profession. In fact, it is doubtful whether it would not be better to consider continued fever as a single whole, without attempting a division; but as such divisions are generally recognized, and may be studied with advantage by the student, I will attempt it. I may state in the commencement, that I am satisfied from personal observation and borne out by many authorities, that continued fever may commence as a *synochal* or simple inflammatory fever, and as it continues, assume the form of *synochoid*, and at last terminate in well marked *typhoid*. Not only so, but it is well known that a fever may commence as an *intermittent*, then become *remittent*, then *continued*, and finally the patient will die of confirmed *typhoid*. Thus Dr. Hosack remarks: "The *typhus* fever, as it appeared at Wallkill, commenced as an intermittent, then became remittent, and at length ended in *typhus*."

Causes.—the causes of synochal fever are, first, those that predispose the patient to disease; as high irritability and tonicity of fiber, with vascular fullness and imperfect performance of the excretory functions. Atmospheric vicissitudes is the common exciting cause.

Symptoms.—This form of continued fever is generally sudden, there being but few premonitory symptoms. The patient's attention is often first arrested by chilly sensations passing over the body, and a sense of dullness and languor. Sometimes the chill is well-marked, in rare cases amounting to *rigor*, but often the sensation of cold is but slight.

This chilliness is rapidly followed by reaction; the skin becomes injected, dry, hot, and burning; the countenance flushed and animated; the pulse frequent, full, strong, and bounding, rarely hard and oppressed; respiration is frequent, the respired air hot, and the mouth and nostrils dry; the bowels are constipated, and the urine scanty and high colored; the tongue white, its papillæ elongated and erect. The patient experiences great thirst, and manifests increased sensibility, especially in regard to light and noise. There is frequently some headache, with sometimes vertigo, and the patient is watchful, restless, and uneasy.

As the disease progresses these symptoms increase in severity; the secretions are still further arrested, the heat and dryness of the skin increase, and the patient is more watchful and uneasy. All the symptoms are usually more exasperated in the evening and early part of the night. The fever continues to increase in intensity until about the fifth or sixth day, when there is a tendency to a crisis, and the disease is frequently arrested by the establishment of secretion. If it progress much beyond this period, we observe a manifest prostration, the symptoms being those of synochoid; and in the course of as many days more, marked evidence of disorganization of the blood and typhoid symptoms. We rarely, if ever, see the disease terminate fatally as an inflammatory fever, unless complicated with inflammation of some important organ.

The temperature in synochal fever has a pretty high range. Yet the wave-lines or difference between morning and evening temperature are well marked. The following table gives the variations of temperature in a fever terminating the 15th day:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Even'g		103.5	105	105.5	106	104	106.5	105	104.5	104	104.5	103.5	103	101	
Morn'g	99	102	102	103	103.5	101.5	104	102	102	102	101.5	100	100	99	98

In a case developing *typhoid* symptoms in the third week, from improper treatment, we find the following range of temperature from the 13th day until death:

	13	14	15	16	17	18	19	20	21
Evening.....	105	105.5	100	105.5	107	106.4	105	106	108.5
Morning.....		104	101.3	105	106	105	104.5	105	106.5

COMPLICATIONS.— The most frequent complication of this disease is inflammation of some part of the respiratory apparatus, the symptoms of which are frequently obscured by the

fever; this complication must be constantly watched for. Determination to, and inflammation of the brain, occur in some cases; but the symptoms developed will usually attract the attention of the physician. Occasionally irritation of the stomach arises and renders the treatment difficult.

DIAGNOSIS.—The continued reaction determines the type of the fever; the marked evidence of excitation, little prostration, and the full and bounding character of the pulse showing great vital power, distinguishes it from synochoid and typhoid. The prognosis is favorable if no serious complication should arise.

TREATMENT.—We notice two prominent indications in the treatment of this disease; first, to reduce the force and frequency of the circulation and the irritability of the nervous system, and produce relaxation; and, second, to obtain secretion from the principal outlets, the skin, kidneys, and bowels.

Before the introduction of the special sedatives, the first was accomplished by the administration of nauseant diaphoretics, the use of the cold affusion, or spirit or other vapor baths, with frequently the administration of a hydragogue cathartic. We now accomplish the same end by the administration of the special sedatives. In this case, the Veratrum Viride, in small doses frequently repeated, with the addition of Gelseminum and Macrotys to relieve nervous irritation, will accomplish the purpose. The Tincture of Veratrum Viride should be administered in doses of from one to three drops every half hour or hour, with about ten drops of the Tinctures of each of the other two agents named. The surface should be frequently bathed with moderately cool water and some warm diaphoretic infusion given as a diluent. If there appears to be great vascular fullness it is best to administer at first a free cathartic, as Compound Powder of Jalap and Senna and Bitartrate of Potash, *aa* ℥ss; which, by producing free watery discharges from the bowels, will increase the effect of other remedies. This treatment will moderate the febrile reaction, and in from thirty to seventy hours we will find the pulse reduced to nearly a normal standard, the irritation of the nervous system subdued, and relaxation of the entire system, with increase of secretion.

Then we commence the administration of diaphoretics and diuretics, still continuing the sedative, to keep up its influence

The mild diaphoretics produce the best results, as an infusion of Asclepias, Eupatorium, Polygonum, Pterospora, etc., or Asclepin and Compound Powder of Ipecac and Opium, equal parts. The action of these agents should be increased by the use of the hot foot bath. The saline diuretics, as the Acetate, Citrate or Nitrate of Potash, are the ones indicated, in doses of gr. xx, every four hours. Moderately free secretion from the skin and kidneys is thus obtained, and the system still further relieved. A sufficient dose of Opium to induce sleep is now very beneficial. This treatment, if there are no complications, should be continued until convalescence is established, and if properly pursued it will arrest the fever in from four to nine days.

SYNOCHOID FEVER.

COMMON CONTINUED FEVER.

This form of fever occurs in persons of moderate strength of constitution, and when there has been no previous cause acting on the system to lower the vitality, or permanently derange the excretory organs, and the constitution of the blood. At its commencement we notice no symptoms of great impairment of the fluids, though should the disease continue long, such change in the blood will occur as to give rise to *typhoid* symptoms. This is the disease which, in the majority of cases, has been designated as typhoid fever, because, if allowed to progress, such symptoms became manifest; but more frequently because popular opinion regards the last named fever as an exceedingly dangerous disease, and physicians like to claim the credit of curing it. I use the term typhoid in its literal meaning, "*resembling typhus*," and apply it to those cases exhibiting marked loss of vitality, and commencing necræmia. If it was strictly used in this sense, we could understand better, perhaps, the treatment necessary to its arrest; at least, we would be able to attach some meaning to much that is written about typhoid fever.

CAUSES.—The *predisposing* causes of this, as well as typhoid fever, are all such as occasion temporary exhaustion and want of power in the system to react and expel disease. The *exciting* causes are numerous: as an arrest of secretion, and retention

of excrementitious material; the absorption of exhalations from vegetable and animal matter undergoing decomposition; animal miasmas, as from healthy persons or animals crowded together, or confined in imperfectly ventilated situations, and without due regard to cleanliness; from persons laboring under disease of any kind in ill-ventilated apartments. "Every population," says Mr. Chadwick, "throws off insensibly an atmosphere of organic matter, excessively rare in country and town, but less rare in dense, than in open districts; and this atmosphere hangs over cities like a light cloud, slowly spreading, driven about, falling, dispersed by the winds, washed down by showers. It is not *vitalis halitus*, except by origin, but matter which *has lived*, is dead, has left the body and is undergoing decomposition into simpler than organic elements. The exhalations from sewers, church-yards, vaults, slaughter-houses, cess-pools, commingle in this atmosphere; and, notwithstanding the wonderful provisions of nature for the speedy oxidation of organic matter in water and air, accumulate, and the density of the poison (for in the transition of the decay it is a poison,) is sufficient to impress its destructive action on the living, to receive and impart the process of zymotic principles, to convert by a subtle, sickly deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines." I have never as yet seen a case of this or typhoid fever, but what I could discover in the present or previous location of the patient, the presence of decaying animal matter, to account partially, at least, for the character of the disease.

SYMPTOMS.—The *stage of incubation* is generally of some days duration, though when the cause is intense, it may be brief. The patient complains of languor, indisposition to exertion, loss of appetite, irregularity of bowels, dryness of skin, and more or less pain in head or back, and soreness of muscular tissue. These symptoms increasing, at last a tolerably well marked chill comes on, the patient feels cold, especially at the extremities, and chilly sensations pass over the body. These are shortly alternated with flushes of heat, which become more and more marked, until febrile reaction is established. In rare cases, the cold stage is as well marked as in an intermittent, amounting to a rigor; in many the patient hardly notices the cold stage, it is so slight.

With the development of reaction, the skin becomes hot and dry, the urinary secretion scanty, high colored, and does not deposit a sediment, and the bowels are constipated. The mouth is dry, and the tongue coated with a slightly yellowish white coat, or in some cases a heavy yellowish coat on base, with a bad taste in the mouth and slight nausea; in others, the gastric mucous membrane being irritable, it is elongated, the tip and edges reddened, but coated white in the center; there is thirst, but not so intense as in the preceding form of fever. The pulse is frequent, full, sometimes hard, especially if there is irritation of the mucous membranes, or cerebro-spinal centers, but rarely bounding. In some cases there is nausea and even vomiting; but if so, the tongue will either be found heavily coated at base, with a disagreeable taste in the mouth, and sense of oppression in the epigastrium, or pointed, with reddened tip and edges, and tenderness on pressure over the stomach.

The condition of the nervous system is variable; sometimes the patient is restless, uneasy, and watchful, the special senses being painfully acute, so that the patient can not bear a bright light, and is disturbed by the slightest noise; at others, he lies torpid, does not appear to appreciate his condition, is but slightly affected with what transpires around him, and lays quiet in one position. In either case there may be headache; in the first it is acute, the face being flushed, and eyes reddened, evidencing determination of blood; in the last it is generally dull, a disagreeable sensation of heaviness and oppression.

The symptoms above named increase in intensity to the third or fourth day, after which the fever exhibits but little change, if uncomplicated, except the increasing debility, until after the seventh day; when, if it does not terminate by the establishment of secretion, either naturally, or by the aid of medicine, we observe symptoms of deterioration of the blood, and prostration, making their appearance, and after a variable length of time a low typhoid condition ensues, and we have in fact to treat a fever of the next variety, less the disease of Peyer's glands.

TEMPERATURE.—The range of temperature in this form of fever is not very different from that represented in the diagrams of typhoid fever. In the milder cases, the evening

range is from 102.5° to 104°; the morning range from 100.5° to 102.5°. In the severer cases, we find during the first week, the high range of evening temperature, and long wave-line of synochal fever. And as it advances in the third week, the diminished *wave-line*, or high morning as well as evening temperature.

We may thus readily determine the progress of the disease, and the prospect of its speedy arrest. A low range of temperature, with long wave-lines, gives a favorable prognosis. Even though the fever is severe, the evening range of temperature being high, if there is the large wave-line, (low-morning temperature,) our remedies will act kindly. It is in these cases in which we have a high morning temperature, and of course, short wave-line, that we fear difficulty.

COMPLICATIONS.—This form of fever is frequently complicated with local disease, most generally of an inflammatory character; yet as the fever is fully developed before the local disease commences, the symptoms of the latter are often very obscure.

WITH PREDOMINANT AFFECTION OF THE CEREBRO-SPINAL CENTERS.—This forms the *nervous fever* of older writers, and is not an uncommon disease. The symptoms are all increased in intensity; the skin is intensely hot and pungent, especially of the head and face; the pulse is rapid, strong and full; the breathing frequent and suspirous, and the eyes injected and suffused. There is great irritability and restlessness, with more or less intense headache; giddiness; intolerance to light and noise, and greatly increased general sensibility. Within three or four days, delirium makes its appearance, followed in a longer or shorter time by coma-vigil, coma and insensibility, and by subsultus tendinum. In some cases, the cerebral affection being intense, we find stupor making its appearance speedily, accompanied by a slow, oppressed, and intermittent pulse. If the affection of the nervous centers is acute, the disease may terminate fatally without much disorganization of the blood, but if not, the fever rapidly assumes a typhoid character.

WITH PREDOMINANT AFFECTION OF THE RESPIRATORY APPARATUS.—This is the most common complication of continued fever, though generally, it exists in but a slight degree. The

bronchial mucous membrane is frequently irritated, with slight implication of the lungs. This necessarily aggravates the fever, and induces farther complication, by preventing proper oxygenation of the blood. The patient complains of slight oppression and difficulty of breathing, with accelerated respiration, and slight cough. If bronchitis is fully developed, the difficulty of breathing is increased, and secretion is generally established early, and a mucous rhoncus is heard over the chest, upon auscultation, If much of the structure of the lung becomes diseased, the breathing is hurried, oppressed, and sometimes laborious, the sputa rounded and streaked with blood, and in a short time exhibits the characteristic rusty color of pneumonia. There are manifest symptoms of imperfect aeration of the blood, dark dusky hue of the lips and tongue, flushed appearance of face, oppressed circulation, and coldness of the extremities. With such complication, we notice that prostration is very rapid, and contamination of the fluids speedily ensues, with typhoid symptoms. Low delirium and coma are frequent attendants upon this condition.

WITH PREDOMINANT AFFECTION OF THE GASTRO-ENTERIC MUCOUS MEMBRANES.—In some cases we observe at the commencement, marked symptoms of disorder of the stomach; the tongue is heavily coated, especially at its base, with a dirty-yellowish secretion; there is slight nausea; disgust for food, and oppression in the epigastrium; everything that is administered, is taken by the patient with difficulty, and frequently ejected. This condition is not generally accompanied with as high febrile reaction as in the uncomplicated fever, but there is rapid prostration, and manifestation of typhoid symptoms. In this case there is increased secretion of mucus from the mucous membrane of the stomach, which, if allowed to remain, will undergo decomposition, and being slowly absorbed, will generate decomposition of the blood. In other cases there is marked irritation of the stomach, manifested by redness of the tip and edges of the tongue, uneasiness in, and pain on pressure over the epigastrium, with nausea, and rejection of fluids and solids taken into the stomach. In this case, all the febrile symptoms are increased. The enteric affection does not generally manifest itself in the early stage of the disease. It commences with looseness of the bowels, two,

three, or four evacuations in the twenty-four hours, with pain and soreness in the abdomen, especially on pressure. The tongue is moist and loaded with a dirty-white, or grayish fur, which, as the fever advances, changes to brown, and sordes appear on the teeth and lips; in some cases, the edges and tip of the tongue are reddened. In this case, the fever rapidly assumes a typhoid character.

POST-MORTEM EXAMINATION.—As before remarked, this fever if uncomplicated, rarely terminates fatally, unless symptoms indicating sepsis of the blood are developed. If complicated, there will be marked evidence of the local affection, though we find that the inflammation has been of an ataxic character.

DIAGNOSIS.—The character of the fever can be readily determined after the second day; its uniform progress, medium grade of re-action, and tendency to vitiation of the fluids, are very apparent. It is difficult in many cases to diagnose the local lesions; where the fever is complicated, much care must be used in the examination, and the symptoms carefully compared with those generally ascribed to the local affection.

PROGNOSIS.—The prognosis should be favorable if the fever is uncomplicated. If local disease should arise in its progress the prognosis would depend upon its intensity, and the part affected

TREATMENT.—As has been named, some of these cases run as simple uncomplicated fevers for twenty-one days, and we can hardly see *why* it does not terminate before. Then we have cases without complication in which all the febrile symptoms are *severe*, and as the case progresses there is marked prostration, and evident danger. And still we have another group of cases in which there is more or less serious complications of local disease. It may be said that the diagnosis which determines the name for the fever, does not determine the treatment, for no stereotyped plan can be successful.

We recognize three golden rules in medicine: *never give medicines unless it is clearly seen that they will benefit the patient;* as far as possible, *do one thing at a time;* and *do unto others as we would have them do unto us.* The last seems to include the whole, and if followed we will rarely go astray.

We may think first of the condition of the stomach and in-

testinal canal, for it is through these we introduce our remedies into the blood, and by food support the strength of the patient. It must be borne in mind that whatever we do we must not wrong the stomach and bowels. There is more in this than the reason given, but that is sufficient. All remedies, therefore, which permanently disturb stomach or bowels are to be dispensed with.

An Emetic. There is an occasional case in which the treatment might be commenced with an emetic. It is one in which the tongue is broad, full, and heavily loaded at the base, bad taste in the mouth, nausea, ineffectual efforts at vomiting, and sensations of weight and fullness in the epigastrium. In this case an emetic of Ipecac, grs. v, every fifteen minutes, the Acetous Emetic Tincture of our Dispensatory, or Compound Powder of Lobelia—will give present relief, and facilitate the future treatment.

It is conceded that if any means will abort a continued fever, it is the use of a thorough emetic, given to produce its full influence. In such case as described, it might be tried.

Podophyllin. There is a condition sometimes met with in continued fevers in which I would give Podophyllin as a specific remedy. It will at least prepare the way for other treatment, and I think I have known it to abort the fever. In addition to sensations of abdominal fullness, a broad and loaded tongue, sense of oppression and dull headache, there is a marked *fullness of the superficial veins*, and evident impairment of the venous circulation. Here I should give a half grain of Podophyllin with an equal quantity of Hydrastia and Capsicum every three hours until it operated thoroughly. We follow with the treatment as below.

Irritation of the Stomach. We find some cases in which irritation of stomach is a prominent feature of the disease, preventing the kindly reception of remedies, and the taking of food. The tongue is elongated and pointed, reddened at tip and edges, and there are uneasy sensations in stomach, with, sometimes, tenderness on pressure.

Fortunately in this case, rest, the bath, and small doses of the indicated sedative will give relief. In some cases we add Ipecac, as—℞ Tinct. Aconite, gtt. v, Tinct. Ipecac. gtt. v, Water ℥iv; a teaspoonful every hour. If there is tenderness on pressure, with pain, I should give the Dioscorea with the

Aconite. An infusion of our old Compound Powder of Rhubarb, or of Peach-tree bark, answers a good purpose, but will rarely be needed. A cold or hot pack (as indicated) over the abdomen will be of advantage.

Nausea with Atony. We meet with some cases in which there is severe and persistent nausea, sometimes with vomiting. The stomach will neither tolerate food, drink, or medicine. The tongue is pallid and moist, the face callow, yellowness about the mouth, and some uneasiness in right hypochondrium and epigastrium. In this case I advise small doses of Nux Vomica gtt. j to gtt. v, Water ℥iv; a teaspoonful every half hour or hour. It may be alternated with Aconite.

Food. Whilst speaking of the condition of the stomach, it may be well to suggest that the regular administration of food is very important in the treatment of the sick. We here determine in each case the kind of food which will be best, guided by our knowledge of the case, and the desires of the patient. In many cases where calorifacient food is required, it will be "boiled milk," properly seasoned with salt and pepper; or in place of this, if the appetite craves it, some farinaceous food. Where there is evident feebleness in the heart, respiration, or even in the voluntary muscles, we would think of animal food, beef tea being the type.

Remedies that influence the Circulation. The frequent pulse is one of the characteristic features of a fever, and we are in the habit of thinking of it as one of the principal lesions. As is the frequency of the pulse, so is the increase of temperature. As is the frequency of the pulse, so is the impairment of every function of life, and the tendency to death of blood and tissue. Among the remedies for fever, therefore, sedatives occupy a prominent place. They must be given in small doses, and sufficient time given for their action, if we expect a curative influence.

Aconite. If the pulse is *small* and frequent, we select Aconite as the sedative, giving it largely diluted with water, as. ℞ Tinc. Aconite gtt. v to gtt. x, Water ℥iv; a teaspoonful every hour.

Veratrum. This is the remedy for sthenia. If the pulse is *full* and has *hardness,* we select Veratrum in place of Aconite. The dose of this may be larger, as, ℞ Tinct. Veratrum gtt. x to xxx, Water ℥iv; a teaspoonful every hour

Rhus. Rhus Toxicodendron influences both the circulation

and innervation, and is one of the most prominent remedies in the treatment of fevers. The pulse is frequent and small with a *sharp* stroke. There is pain in the forehead, usually more marked in the left orbit, and the tongue shows minute red points on the upper surface of the tip. The nervous system shows a peculiar irritation, the patient wakes suddenly from sleep as if frightened, and is restless and uneasy. Of the German tincture, the proportion will be gtt. v to water ℥iv, of the American tincture, gtt. x to gtt. xv, to water ℥iv, may be used. We usually combine it with Aconite.

Macrotys. We usually combine Macrotys with the Aconite or Veratrum, where the patient complains of muscular pain, and in women, who are near the menstrual period, or who are pregnant. The dose will be the usual one, gtt. x to gtt. xx, to water ℥iv.

Bryonia. We add Bryonia to the sedative solution when the patient complains of pains in the chest, headache extending from forehead to back of head, the pulse being hard and somewhat vibratile; gtt. v to gtt. x, are added to the sedative mixture.

The Temperature. We have learned that there is a very intimate relationship between the temperature and the pulse, usually one degree to ten beats. If the pulse is reduced in frequency, the temperature comes down, and if the temperature is reduced, the pulse loses frequency in the same proportion. The skin is the regulator of the temperature, and therefore, remedies directed to the skin are of importance in fevers.

Baths. The advantages of bathing are now generally recognized, though I can recall the time when the sick were never washed, physician and people thinking that water was injurious or dangerous. We wash the patient to keep him clean, "cleanliness being next to godliness," and indeed preferable in the treatment of a fever.

What Bath. Evidently all cases do not want the same bath. Where there is in the commencement of the disease a high range of temperature, a full pulse, and an active cutaneous circulation, the wet-sheet pack would be a good remedy. At least in this case the bath may be cold. Whether the bath shall be hot or cold, may be decided by the sensations of the pa-

tient—that which is pleasant being the best. For cleansing the skin, nothing is better than soap and water

The *Alkaline bath* seems to be the favorite with Eclectic physicians, yet sometimes the water seems to make no more impression than if it was poured on a duck's back. My rule for selecting the bath is a very simple one—use that agent externally which is indicated internally. If the tongue shows the need of alkalies, use the alkaline bath; if it calls for acids, use acidulated water; if there is need for a stimulant, use a stimulant bath; if it is a case calling for alcoholic stimuli, add alcohol to the bath; if it is one requiring the nerve stimulus of quinine, use quinine by inunction, or use it with alcohol; if the patient needs calorifacient material internally, think of fatty inunction. This may be a crude method of selecting the right bath, but it is decidedly better than no method.

The Rhus, Bryonia, and some other agents, influence the process of combustion as well as the pulse. I think Asclepias, Baptisia, Phytolacca, the Sulphites, Alkalies and Acids, have an action in this direction, though we can study them better elsewhere.

The Nervous System. The wrongs of innervation are among the most prominent symptoms of a fever, and we may find them as pronounced complications at the commencement. We may recognize two opposite conditions as regards the circulation — one of irritation and determination of blood, and one of atony and congestion.

Gelseminum. The symptoms of irritation and determination of blood, and the indications for Gelseminum, are—a flushed face, bright eyes, contracted pupils, with restlessness and indisposition to sleep. In such cases I advise that Tinct. Gelseminum gtt. x to ℥i be added to the sedative, or if more severe, bordering on inflammation, the remedy may be given in doses of five to ten drops every one to three hours.

Belladonna. The symptoms of congestion are almost the opposite. The face is expressionless, the eyes dull, the pupils dilated, the mind inactive, the patient inclined to sleep, and after a time coma is a feature of the disease. In such cases I advise that Tinct. Belladonna be added to the sedative (usually Aconite) in the proportion of gtt. v to gtt. xv, to the ℥iv of water.

Rest. It is of great importance that the patient suffering from fever should have rest, mental as well as bodily. You may suppose that this will follow as a natural consequence of being sick, but unfortunately it is not so, and many times a patient is kept continually irritated by avoidable causes of worry. If the attending physician thinks of this, he can so advise the friends that mental rest may be had.

Bodily rest is obtained by change of position, by shaking up the bed and pillows, by keeping the bed clothes straightened, by gentle frictions of parts that are weary, and the many little kindnesses that the accomplished nurse can render.

Sleep. Sleep is of great importance to the well-being of the sick, and the disease is sure to show unpleasant symptoms if there is much loss of sleep. As a rule, the influence of the sedatives, with the bath, is sufficient to so relieve the nervous system that the patient will sleep. Sponging the patient's face and hands, shaking up the pillows and bed, change of position, and absolute quiet, and darkness, will frequently be sufficient where there is continued wakefulness. In some cases the feet may be sponged with hot mustard-water, thoroughly dried and wrapped in flannel, and a bottle of hot water or a hot brick put to the feet, as an additional means of procuring sleep.

Quinine with Opium. But when these simple means fail, and the patient suffers from sleeplessness, we may be obliged to resort to remedies to induce sleep. If the pulse is softened, the skin not so dry and harsh, and the tongue moist, we may give Opium to produce sleep. In this case Prof. King's prescription is a very good one. ℞ Comp. Powder of Ipecac and Opium ℥ss, Quinine gr. vj; make six powders, and give one every four hours. In place of this, as it is handier and not so unpleasant, I give a quinine pill of one grain, and a morphine pellet of one-eighth grain together.

Chloral. This is not a favorite of mine from its uncertainty, yet with the symptoms as named for Opium, it may be given in five or ten grain doses with safety.

Pulsatilla. There is a peculiar nervousness sometimes seen in fever which prevents sleep. The patient is fearful that something unpleasant will happen to him, and he does not shut his eyes in sleep for fear that he will never open them

again. In this case, ℞ Tinct. Pulsatilla gtt. v to x, Water ℥iv, a teaspoonful every one to four hours, will likely give relief.

Lobelia. More rarely we meet with a case in which there is a sense of oppression in the precordial region, with fear of impending danger. There is usually an oppressed pulse with this. Here sometimes a single dose of Tinct. Lobelia seed, five or ten drops, will give relief and sleep.

Strychnia. There is a rare case in which Strychnia is the remedy to give sleep. There is want of spinal innervation, and the function of respiration is carried on more and more by an influence of the will. As soon as the patient dozes, respiration becomes defective, and he suddenly wakes with a sense of suffocation. The dose of Strychnia in such cases will be from the 1-120 to the 1-20 of a grain.

Counter-irritation about the Ear and first Cervical Ganglion. Among the most severe and dangerous cases, we have some who are restless and sleepless, and to whom we dare not give opiates. The pinched features, the contracted alæ nasi, contraction about the eyes which are sunken, the small frequent pulse, pungent heat, tells an unpleasant story of rapid loss of nervous power. In this case I advise Chloroform counter-irritation about the ears, and especially over the first cervical ganglion, as a safe means of procuring rest and sleep. A small piece of flannel folded three or four thicknesses is wetted in the center with Chloroform, and held on the part as long as the patient can bear it. It is moved from place to place and repeated when necessary.

A Hop Pillow. In the advanced stage of the disease, when there is sleeplessness, and we do not give Opium, we may think of the old fashioned hop pillow, which certainly can do no harm if it does no good. Fill a small pillow-slip with *fresh* hops, for the head to lie on.

Excretions. A fever when there is recovery always terminates by the establishment of free excretion, and it has been thought that this was necessary to such termination. Whether it is or not, it is very clear that such action of the excretory organs as will free the blood from excreta is necessary for the present well being of the patient, and in many cases I am sure aids in arresting the fever.

From the Skin. The use of baths to regulate the temperature has been already noticed, and these are among the means

for securing better excretion from the skin. But there are periods in the progress of the fever, when the diminution of the temperature, and of vascular excitement, and the softened skin, show that diaphoretics may be used with advantage. I like the milder remedies, as the Asclepias, and use with them the means analogous to the hot foot bath.

From the Kidneys. Increased secretion of urine almost invariably lessons febrile re-action, and is one of the prominent means of checking a fever. From the large class of diuretics we may select two for description.

Spiritus Ætheris Nitrici. Sweet Spirits of Nitre is a good, if an old remedy. It acts very kindly with the sedative, assisting its action, relieving irritation of the nerve centres, and increasing secretion of urine. I should advise it in cases where there is scanty urine, with nervous irritation, and contraction of tissues. A very good way to give it is to add a teaspoonful to a half glass of water, and give this in teaspoonful doses alternately with the sedative.

Acetate of Potash. We use a solution of Acetate of Potash when retrograde metamorphosis is manifestly deficient. If the tissues seem to be full, not wasting as is common in fevers, I should give the saline diuretic—℞ Acetate of Potash ℥ss, Water ℥iv; a teaspoonful every three or four hours, largely diluted with water.

The Bowels. Constipation is not a reason for the administration of cathartic medicines, and without some other we would rather dispense with them. An enema, or a mild laxative may be used every second or third day to obtain a motion in the ordinary cases with advantage. But there are cases in which accumulations are evidently the cause of irritation or depression, and the administration of mild cathartics will give marked relief. The agent or agents need not be named here, as each practitioner's experience will suggest the ones best adapted to the case.

Leptandrin. In simple atony of the bowels, with deficient secretion from the liver and associate glands, Leptandrin may be used with advantage in doses of one or two grains every four hours. It may be triturated with Bitartrate of Potash, or Bicarbonate of Potash, as it usually acts better in this form, The expressionless mouth, full abdomen, langour associated

with nervousness and indisposition to sleep, are characteristic symptoms.

Podophyllin and Hydrastia. There is a case in which minute doses of Podophyllin gr. 1-20, with Hydrastia gr. 1-4, will be of benefit. If I should add to the symptoms of atony of the intestinal canal, dull pain in the head with feelings of *dizziness*, I would point out the special case. I think the remedy is especially a stimulant to the sympathetic nervous system. In this dose once or twice a day will be sufficient.

The Condition of the Blood. Wrongs of the blood may be shown at the very commencement of the disease, or they may only make their appearance during the second or third week. The more common means of recognition is by an exudation from the blood, or the appearance of structures in which the blood circulates freely. In some seasons we will find an indication for alkalies, in others for acids, and in still others for the antiseptics.

Alkaline Salts. We have been in the habit of saying that where the tongue was broad, fuil, *pallid* and moist, the coating usually being white or yellowish white, the patient should have an alkali. With this condition of the tongue it will be noticed that the usual remedies do but little good—sedatives do not produce sedation, stimulants do not stimulate, remedies to increase excretion do not exert their usual influence—here if we give a weak solution of Bicarbonate of Soda (it makes a pleasant drink) we will find that the patient is improved, and our remedies act kindly. I place considerable stress on giving medicine in pleasant form, and in this case I find that a small quantity in the water makes it more palatable, and the patient may be allowed to drink it as freely as he wishes.

Acids. More frequently the continued fevers will show the indications for acids, sometimes at the commencement, at others in the later stages of the disease. The indication for them is the *deep red* color of mucous membranes. The tongue is usually contracted, and if coated will have a tinge of brown. It is frequently associated with the condition and symptoms known as "typhoid." I usually prescribe—℞ Dilute Muriatic Acid ℥ss, Simple Syrup ℥iss; add to water so as to make a pleasant acid drink, and give as the patient wishes it; a teaspoonful of the mixture every three hours is sufficient. In

place of this lactic acid, whey, or hard cider may be given in some cases

Antiseptics. As the fever progresses those symptoms known as *typhoid* make their appearance. The reader will not understand that we have a typhoid fever with disease of Peyer's glands, but only the evidences of sepsis of the blood and prostration that we observe in typhus and typhoid fevers. The word "typhoid" is here used as an adjective to denote a condition similar to that noticed in the fevers named. To meet these symptoms we use a class of remedies called antiseptic, and when especially indicated, we obtain definite results from them. We may here consider the following of this group: Sulphite of Soda, Muriatic Acid, Sulphurous Acid, Baptisia, and Chlorate of Potash.

I may premise by saying that the special evidences of sepsis or typhoid disease of the blood, we find in the exudation upon the tongue. The tongue is moist and dirty—nasty—or the coatings have a tinge of *brown*, growing deeper as the disease advances. Bad odors—putrefaction—are also evidences of typhoid.

Sulphite of Soda. The indication for this remedy is the moist, pallid, *dirty* tongue. We give it in doses of from five to twenty grains every three hours.

Muriatic Acid. The indications for an acid have already been named—the deep red color of mucous membranes. The evidence of the typhoid condition is *brown* coating on the tongue, sordes on the teeth, nervous prostration, and pungent heat of surface

Sulphurous Acid. This is a very feeble acid, and is not given to fulfill the general indications for an acid. We give it where there is normal color of mucous membranes, and where the dirty coat and sordes show sepsis; it may be given in doses of ten to thirty drops every three or four hours.

Baptisia. It is not so easy to see the exact indications for Baptisia, yet it is one of our very best remedies, if the diagnosis is rightly made. There is a dull-red coloration of skin where it has a free circulation, of the lips, and of the tongue and fauces; or, as we sometimes say, there is an *off*-color of the tongue—livid, purplish, dull-red. In the advanced stage of the disease the tongue is protruded with difficulty, is stiff, fissured, and bleeds, and the tissues of the mouth and fauces

look full and lifeless. The pulse is oppressed, and the skin is dry, husky and lifeless. The excretions are frequently fetid. I prescribe—℞ Tinct. Baptisia gtt. x, Water ℥iv ; a teaspoonful every two hours, usually alternated with the proper sedative.

Chlorate of Potash. We may get a better idea of the special indication for this agent if we think of it as the remedy for the puerperal state. Given, offensive lochial discharge following abortion or delivery at full term, I use Chlorate of Potash. I use this remedy in cynanche maligna, and, as will be recollected, a characteristic symptom here is the putrefactive odor. So in the advanced stages of a fever, if there is this unpleasant odor of decomposition, I prescribe Chlorate of Potash ℥ij, Water ℥iv ; a teaspoonful every two or three hours.

Disinfectants. We recognize the fact that a patient suffering from continued fever may be poisoned by the exhalations from his own body, by decomposition of the excretions in the room, and by dirt from any source. This is something that must be thought of and looked after in every case. Be sure that the bed coverings are kept clean ; that the clothing of the patient is changed frequently ; that the room is kept clean ; that the chamber utensils are thoroughly cleansed after use. See that fresh air is admitted to the room, and that the foul air has a chance to get out (through an open fire-place, if possible, in which a small fire is kept.)

But if bad odors develop, destroy them with antiseptics. If in the cellar or out-buildings, white-wash will answer ; drains may also be limed, or Chloride of Lime may be used. The vessels about the bed may be washed in a solution of Chlorinated Soda, or Sulphurous Acid, and the air of the room may be disinfected by a spray of Sulphurous Acid, or a solution of Chlorinated Soda. The air spray apparatus is now so cheap and good, that we can employ it more in these cases.

Tonics. In the advanced stages of a fever it is sometimes necessary to resort to the class of remedies known as tonics. Keeping the stomach in good condition for the reception of food, and good food, have been named as essentials in a right treatment. In some cases, though not frequently, a stomachic bitter in small quantity proves useful. The preparations of Hydrastia are usually preferred, and in the majority of cases

I would prefer to give it with the minute dose of Podophyllin as heretofore named. During convalescence a tonic treatment is sometimes necessary.

Quinine. I do not use Quinine as a tonic, but as a nerve stimulant. In some cases of fever, the case seems to progress well enough, remedies act kindly, and it would seem that the various functions were being restored. But the patient is feeble, and innervation is wanting to carry them on and hold that which we have gained. In this case the pulse has softened, and is less frequent, the skin is softer, and the tongue is moist and inclined to clean. Here Quinine may be given in doses of one or two grains, repeated three or four times a day. If it acts kindly the patient will feel stronger and better, and every function will be improved. If it sharpens the pulse, dries the skin, dries the tongue, and excites the nervous system, stop it at once.

There is a case of fever in which the tongue is continuously moist and relaxed, every function impaired, and a rapid loss of strength. In this case quinine dries the tongue, though all the functions are improved. This is the exception to the rule named.

Strychnia. I find two indications for the use of Strychnia in continued fever, both showing impaired spinal innervation. In one there is a growing impairment of respiration, and it is carried on more and more under the influence of the will. Finally, the patient has difficulty in sleeping, for when the will is in abeyance, respiration is not well performed, and at last the patient can hardly sleep at all, waking suddenly with a sense of asphyxia. In the other there is a growing difficulty in evacuating the bladder, which may go on to retention of urine. In these cases I should advise Strychnia in doses of one-sixtieth to one-thirtieth of a grain.

Restoratives. In convalesence from fever, we sometimes find it necessary to use restoratives. Whilst any of the class may be indicated and used with benefit, I will only call attention to the Compound Syrup of the Hypophosphites, which is more generally useful than any other, as it seems to furnish the small amount of material necessary to make blood and nerve tissue. A teaspoonful after each meal is the common dose.

Stimulants. Whilst I do not advocate the modern stimulant

treatment of acute disease, I recognize a condition in which they may prove very useful. The patient is greatly exhausted, and is unable to taste and appreciate food, or to maintain the high temperature of the fever. This being evident, we think of alcoholic stimulants as a means of supporting life for the time being. As a rule, good whisky or brandy is the best form in which a stimulant can be used, and it should be given in small quantity at a time, but repeated sufficiently often to continue the effect. In some cases it should be given hot, the stomach requiring the heat, but in others it does best when ice cold. In some it is largely diluted, but in others it is given without dilution. In hiccough attending fever the principal remedy is brandy or whisky without dilution.

Hemorrhage. It is quite rare that we have hemorrhage in common continued fever, but yet it may occur in the advanced stages of the disease, hemorrhage from the nose, from the stomach, from the kidneys, from the lungs. In typhoid fever proper, it is of more common occurrence. In either case, the remedy is charcoal, triturated one to ten parts of sugar of milk, a grain every three hours. There is a peculiar atonic tongue, a little small, moist, covered with a slick pasty coat, which seems to be detached in small spots, showing the redness below, in which I should give the charcoal as named, as a remedy for the fever.

Thus I have given the indications for remedies one by one, and in order to get a successful treatment it is necessary that each case be thoroughly analyzed, and the remedies selected as indicated. Though we call the disease "continued fever," hardly any two cases will be alike, and in different cases we will want very different remedies. I think the reader will have but little difficulty in recognizing the symptoms named, and will soon learn to associate a certain group of symptoms with a certain remedy. It is very fortunate for us that where we have learned the relation between symptoms and remedies for one disease, we have learned it for all diseases.

The Epidemic Remedy. I think many of my readers have become convinced that the diseases of a season may be influenced by an epidemic cause of disease, and may all have something in common; and that the diseases of a locality may have a common peculiarity due to an endemic cause of disease, which influences all cases of sickness. A very little

thought, recalling the experiences of the past, will, I think, convince any one that we have an important truth here, and that we must have epidemic and endemic remedies.

If there is the impress of an epidemic cause, there will be some common expressions of disease—something in the pulse, the appearance of the tongue, the condition of the nervous system, etc. And we find that this is the fact, as the diseases of a season, at least the simpler cases, will show a common symptom—say, *deep-redness* of tongue, a *broad and pallid* tongue, a *pallid dirty* tongue, a full *dusky* tongue, a pointed tongue with prominent red papillæ at tip, a small tongue pointed and pallid, etc. Or we find it in the nervous system, in restlessness, dullness, dull pain, sharp pain, burning pain, pain in forehead, pain in occiput, pain taking the plane of the base of the brain from front to back. But why enumerate them, for every symptom that points us to a remedy may be one of these epidemic symptoms, as the remedy may be an epidemic remedy.

In this connection, and to save repetition, the reader might turn to page 220, *Specific Diagnosis*, and read the chapter on epidemics.

In the November *Journal*, 1876, I named the fact that acids would probably be prominent remedies in the diseases of the following winter, as the graver diseases that I had noticed had the deep-red tongue calling for acids, and were benefited by acids; and so it proved in some sections of country at least, as I had several letters stating the advice had been followed with benefit. Of course it is very difficult to determine the character of disease in advance, and impossible for all sections of country. As the season advanced, the deep-red tongue grew dusky, with full tissues, and Baptisia became a prominent remedy, undoubtedly the epidemic remedy.

TYPHOID FEVER.

It will be reccollected that any fever, either idiopathic or symptomatic, will assume a typhoid character, if it continues sufficiently long for the blood to become engaged in a process of decomposition. In all such diseases, we notice that there is more or less rapid breaking down of the tissues, and the excretory organs being in such condition that it can not be freely

removed, the detritus of the body remains in the blood. This material is undergoing *retrograde metamorphosis*, and it is a well ascertained fact, that in certain conditions of the system, this decomposition is propagated in the blood. If these be facts, we can readily see how a patient may be poisoned by the breaking down and retention of his own tissues. Thus, says Dr. Williams, "In several cases of the early stage of the severest form of Bright's disease, in which the urine was very scantily secreted and highly albuminous, I have seen *typhoid* symptoms of the worst character ensue, accompanied by a breaking up and partial solution of the coloring matter of the blood, with the appearance of pus globules in it"

But it is well to distinguish between the typhoid condition and a typhoid fever, the latter being a disease with a special lesion—disease of Peyer's glands.

CAUSES.—The *predisposing* causes of typhoid fever, are all such as greatly depress the vital power of the system, either temporarily or permanently; and we might say, with truth, that no person, unless originally of feeble vitality, or laboring under some cause that produces depression at the time of exposure, can have primary typhoid fever. It is true, that if the cause acting upon the system was very intense, the disease might be rapidly developed. Animal *miasmata* is the exciting cause of the disease, and by this we understand *animal matter in a state of decomposition*. Liebig says, "An animal substance in the act of decomposition, or a substance generated from the component parts of a living body by disease, communicates its own condition to all parts of the system capable of entering into the same state, if no cause exist in these parts by which the change is counteracted or destroyed." Thus, exposure to gaseous exhalations from animal matter undergoing decomposition, or arising from persons suffering from low typhoid disease, the material gaining entrance into the blood through the lungs, will, if there is not sufficient resistance in the system, set up a process of decomposition, which continuing, will give rise to the phenomena we observe in this form of fever. Thus, in those cases in which decomposing animal matter is introduced into the system by a *dissecting wound*, we observe, first a chill, then febrile reaction with great depression, and finally, evidence of compiete death of the blood, all the symptoms of reaction being of a typhoid character.

As typhoid fever has a definite localization in the glands of Peyer, it has been supposed that it was always produced by a specific *typhoid* poison. Whilst this is a matter of doubt, it would not, if true, conflict with what is here stated above.

This form of fever may be either *endemic*, *sporadic*, *epidemic*, or *contagious*; if endemic, we will find a more or less intense local cause; if sporadic, the miasm may have been speedily generated and dispersed; if epidemic, we have to look to the condition of the atmosphere, as regards moisture and temperature, for the rapid propagation and spread of the miasm. That in certain conditions the disease is contagious, I believe few will deny. Thus, from a person suffering from low typhoid fever, there is continually given off in the excretions, and from the lungs, matter in a state of decomposition, and if proper attention is not paid to ventilation and cleanliness, these exhalations assume a degree of intensity that will unfavorably impress all that come within their reach, and will give rise to the same form of fever, in those predisposed to disease.

SYMPTOMS.—The stage of incubation is frequently of considerable duration in this disease, the symptoms being those of depression. The patient complains of languor and debility, with giddiness, dullness, and confusion of the intellect; the appetite is impaired, uneasiness at the epigastrium, and sometimes slight nausea; a general sense of soreness and stiffness, with more or less pain in the back and limbs is not unfrequent. These symptoms increasing for two or three days, the patient complains of slight chilly sensations, with coldness of extremities, which, becoming more marked, are alternated with flushes of heat. This chill lasts from six to eight hours, but sometimes is prolonged to one or two days.

With the development of reaction, the pulse becomes frequent, full and open, or soft and weak, in some cases soft and easily compressed, or, if of a nervous character, quick and sharp. The tongue is generally loaded with dirty mucus, and is broad, soft, flabby and moist, but sometimes coated in the center, but with reddened tip and edges; there is considerable thirst. In some cases the tongue is heavily loaded, especially at the base, with bad taste in the mouth, and feeling of oppression at the epigastrium, indicating morbid accumulations in the stomach. The urine is slightly diminished in quantity, and of a turbid

and frothy, but does not deposit a sediment; the bowels are usually natural as to frequency, but extremely susceptible to the action of medicine; the discharges being thin, pale, and frothy. The temperature of the surface varies greatly, sometimes it is intensely hot and pungent, but more frequently, but slightly increased, with tendency to coldness of the extremities. The countenance is dull, pallid, and shrunken, or transiently flushed; the eyes heavy and devoid of lustre, and the head heavy, confused and giddy. The patient sometimes exhibits great uneasiness, and is restless, changing his position frequently, but at others is torpid, careless, and unimpressible. The respiration is frequently but little affected the first two or three days, but sometimes frequent and suspirous.

By the fifth to the eighth day we find that the head has become more affected, and the mind is confused; the patient reasons with difficulty and answers slowly. Sometimes, even at this early period, we have a partial development of that dreamy delirium termed *typhomania*. The respiration has now become affected, and is short and quick, or labored and suspirous. In some cases symptoms of enteric affection begin as early as the second or third day, or at farthest by the end of the first week; the bowels are irregular—two, three, or four evacuations in the twenty-four hours, watery, yellowish, clay-colored, frothy, and fœtid. The patient now begins to complain of tenderness of the bowels, and it will be found that pressure produces pain. The urine is but little diminished in quantity, but is pale and frothy, resembling whey or new made beer.

By the tenth or twelfth day, the bowels have become quite loose, the operations frequent and difficult to arrest, with increased tenderness on pressure, and flatulent distension of the abdomen. The coating of the tongue has been gradually changing its color, and is now brown, somewhat fissured, or sometimes the coating has disappeared and the tongue is dry, red and glossy; sordes commence to appear upon the teeth and lips. Typhomania has now become fully developed, the patient appears half asleep, his mind wanders, he talks to himself of his business, his pleasures, or reveling in the chambers of memory, he appears to be living his past life over. Sometimes this typhomania is replaced by *coma-vigil*, the patient appears to be in a profound stupor, but is aroused by the

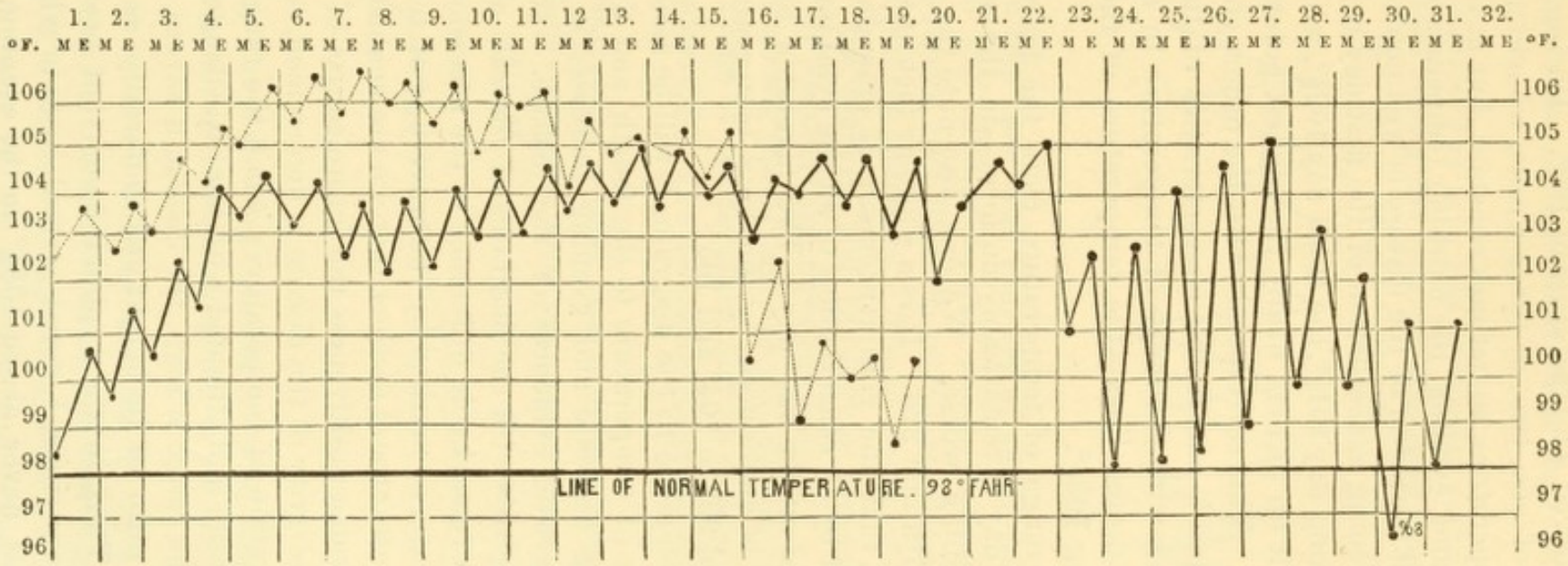
slightest sound, to immediately sink back into his former condition. About this time, though sometimes as early as the fifth day, the *rose-colored eruption* makes its appearance upon the breast and neck; this eruption manifests itself in small rose-colored spots about the size of the head of a pin, the color disappears upon pressing the finger over them, but returns when the pressure is removed. Milaria sometimes makes its appearance at this time in the shape of minute vesicles, filled with limpid serum. The patient has now become so prostrated that he requires assistance to get up in bed, or change his position.

From this to the twentieth day, the diarrhœa becomes worse, the discharges being dark, fœtid, and very offensive, and the abdomen very much distended; the coating upon the tongue becomes almost black, and the teeth and lips covered with a dark offensive sordes. The prostration is extreme, and the stupor profound. Frequently the heat of the surface sinks, the extremities being kept warm with the greatest difficulty; and sometimes there is fœtid perspiration. Petechiæ sometimes make their appearance in the shape of small purplish-red discolorations, not effaced by pressure; these extending, form vibices. The posture is constantly supine, with tendency to slip down to the foot of the bed. The fæces and urine are now discharged involuntarily, or in some cases there is suppression of urine, which, if allowed to continue, will cause great distension of the bladder with rapid prostration and death. *Subsultus tendinum* comes on, with picking at the bedclothes, and finally *jactitation*. At last, the vitality of the patient is so far exhausted, that there is no longer power to circulate the blood, and the patient dies.

The diagram of the temperature does not wholly represent our ideal of typhoid fever, which we think of and talk about as *continued*, *i. e.*, presenting uniform febrile symptoms throughout its course. We observe first, that the great law of periodicity is marked in this as well as in the simple intermittent—that the morning decline and evening increase of temperature are marked and regular; and we will see hereafter, that when this is not the case the fever is very dangerous.

The first memorandum in the diagram is at the commencement of the first day with a temperature of 98°. I think this must be an error, as in quite a number of cases the period of

TYPICAL RANGES OF TEMPERATURE IN CASES OF TYPHUS AND TYPHOID FEVER, CONTRASTED WITH EACH OTHER THROUGHOUT THEIR COURSE FROM THE BEGINNING TO THE END OF THE DISEASE. THE RECORDS INDICATE MORNING (M.) AND EVENING (E) OBSERVATIONS. The dotted lines indicate the Typhus range; the continuous dark lines indicate the range in Typhoid. (Wunderlich and Traube.)



chill showed a temperature of 100°. During the entire forming stages of one, two, or three weeks, we will notice an increase of temperature, sometimes constant, but at others in the afternoon and evening, the morning temperature being 98°. The gradual accession of the disease is well marked in the diagram. The evening exacerbation of the first day being about 100°, of the second day 101¼°, the third day 102½°, whilst the fourth day brings it up to 104°, nearly the highest point of febrile exacerbation. This corresponds with the other symptoms of typhoid fever, and is one of the characteristics of the disease. Compare this with the range of temperature in *typhus*, as marked by the dotted lines—the temperature of the commencement reaching 103½°.

The range of temperature from the fourth to the twenty-second day is remarkably uniform—in the morning better, in the evening worse. We can also note the *bad* days, the 5th, 13th, 17th and 22d. It is a singular fact in the history of the disease, that the commencement of amendment is frequently marked by an exacerbation of all the symptoms, as in this case occurred on the 22d day. The favorable termination of the disease is announced by the long temperature wave — from 98½° and 99° to 104° and 105°.

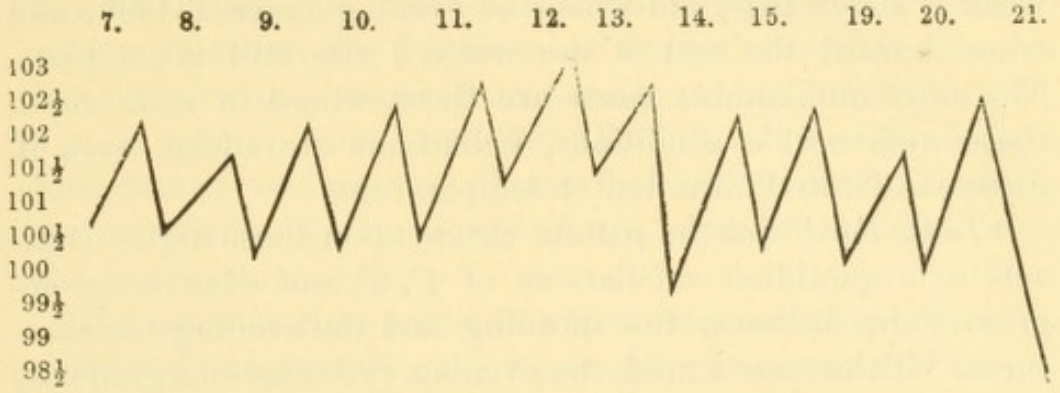
By reference to the diagram, it will be seen that the gradual increase of temperature to the fourth and fifth day, with the morning decrease and evening increase, is one of the most characteristic evidences of the disease. If the reader will compare this with the diagrams of *febricula* on page 82, he will notice a remarkable difference in the accession and progress of the disease, as marked by the wave-line of temperature. This is so constant and distinct that we are enabled to predict with considerable positiveness the future course of the disease.

The severity of the disease is determined, to some extent, by the elevation of temperature; when the range is low, the disease is mild and attended with but little danger; and commonly when the range is high, the disease is severe, and is dangerous in the ratio of its height and uniformity, as we will see hereafter. Thus, in the typhoid fever that prevailed in this city four years since, I noted several cases in which the temperature was never above 103½° in the evening, and the uniform morning range was 100°. The following diagram illustrates

this case, from the seventh to the twenty-first day, when the patient convalesced:

RANGE OF TEMPERATURE IN MILD CASE OF TYPHOID FEVER

The upper points indicate evening, and lower points morning temperature

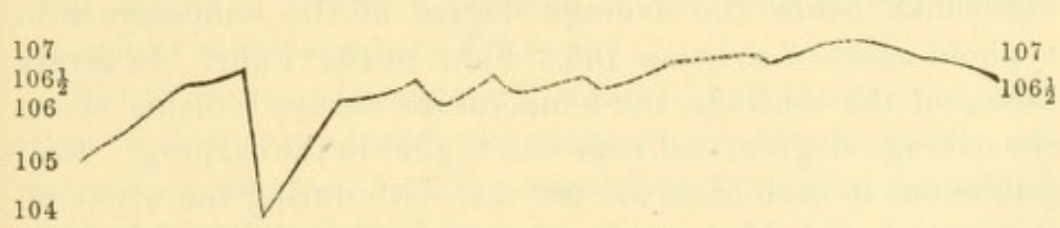


The treatment in this case was the use of small doses of Aconite to control the circulation, and which, undoubtedly, modified the temperature, and Bismuth to relieve irritation of the bowels and control the diarrhœa. The evidence of disease of Peyer's glands was marked, and the highest temperature, 103°, was followed by hæmorrhage from the bowels.

As we have seen above, the severity of the disease is indicated by the high range of temperature, and its danger by the uniformity of temperature. The following diagram will illustrate this:

RANGE OF TEMPERATURE IN A FATAL CASE OF TYPHOID FEVER;

The upper points indicate evening, the lower points morning temperature.



Dr. Aitkin draws the following conclusions with respect to the height and variation of the temperature, as shown by the thermometer:

"A retardation of recovery until at least the fourth week is to be anticipated when, in the second week, the morning temperature is above 103° and the evening above 104.5°; when the exacerbations occur early in the forenoon and remain after midnight; and, lastly, when a fall in temperature about the middle of the week does not take place.

"A permanent temperature of 104° is an unfavorable sign—so also is an elevation of the morning above the evening temperatures. A severe form of the disease is to be expected when the morning temperature at the beginning of the second week is above 104°, and when the evening reaches 106°; and when, toward the end of the week, a rise still takes place. The most unfavorable cases are those where, in addition to these unfavorable conditions, oscillations are added, even if these consist in diminution of temperature.

"*In the third week* the patient enters upon those highly characteristic quotidian vacillations of 4°, 6°, and even more degrees Fahr. between the morning and the evening temperatures. If the case is mild, the evening exacerbations gradually decrease in intensity, and the morning temperature is regularly, at first, from 3° to 4° below the evening. The fever ceases in the course of the week, the temperature is reaching its natural standard, and convalescence commences, as a rule, sometimes in the third week, generally in the fourth week, or at the latest, in the fifth week.

"In severe cases the characteristics mentioned as peculiar to the third week already commence in the second. The temperature in the morning is high (104° Fahr., and more,) and differs but little from that in the evening; or even that high temperature increases in the afternoon and evening to a still higher degree. In this it differs from a remission of the fever in a mild case, inasmuch as in remissions the heat in the mornings sinks below the average degree of the temperature in typhoid cases—*i. e.*, below 103.3° Fahr. to 104° Fahr. In severe cases, on the contrary, the temperature always remains above the average degree, and rises still higher in the evening. Real remissions in such cases are not met with during the whole of the second and third weeks; but when the case is favorable, although severe, the temperature is about a degree lower than in the second week, and the remissions do not take place till the fourth week; and if the temperature remains as high, or rises higher than it was in the second week, the remissions do not occur till the fifth week, and irregularities in the ranges of temperature always render the prognosis doubtful.

"So late as *the fourth week* the evening temperatures are still high, and they decrease very gradually even in favorable cases. Toward the end of the fourth week, or in the fifth week, or

even so late as the sixth week, the great and increasing remissions commence—a period at which various other phenomena occur, and when the complications and dangers are numerous."

The Influence of Treatment on the Temperature.—By reference to table on page 18, it will be noticed that there is a constant relation between the frequency of the pulse and the temperature; that with a range of temperature of 103° to 105°, we find a pulse ranging from 110–115 to 130–140. It is evident, therefore, that if we have any means that will control the circulation—lessening the frequency of the pulse—it will also lower the temperature.

The question then arises, if a treatment will thus control the pulse and temperature, may it not change a severe and dangerous case into a mild one without danger? We answer this question in the affirmative, not as a theory, but from observations on many cases of the disease.

I think I am justified in stating, as an axiom, that just in the ratio that the circulation is thus controlled, and the temperature reduced, the fever is rendered mild.

I wish it distinctly understood, however, that I refer only to those influences which can be continued for some days, and not to those which endure but a few hours The use of large doses of veratrum will bring down the pulse from 130 to 60 or 70 beats per minute, in six to ten hours, and with a corresponding reduction in temperature; but it is not possible to continue this influence, as in a few hours the stomach becomes irritable and rejects it, or the depression of the sympathetic nervous system is such as to peril life.

But if the remedy is given in doses of half to one drop, sedation is slowly produced, the stomach receives it kindly, and instead of depression of the vegetative functions, the remedy acts as a stimulant to them.

But is it possible to arrest such a fever before it has run its course? I am satisfied that this question may also be answered in the affirmative. Not that every case can be shortened, for in some the local lesion of Peyer's glands proves an insurmountable obstacle; but many can be arrested from the seventh to the ninth day, more by the fourteenth, and in nearly all the disease can be restricted to twenty-one days.

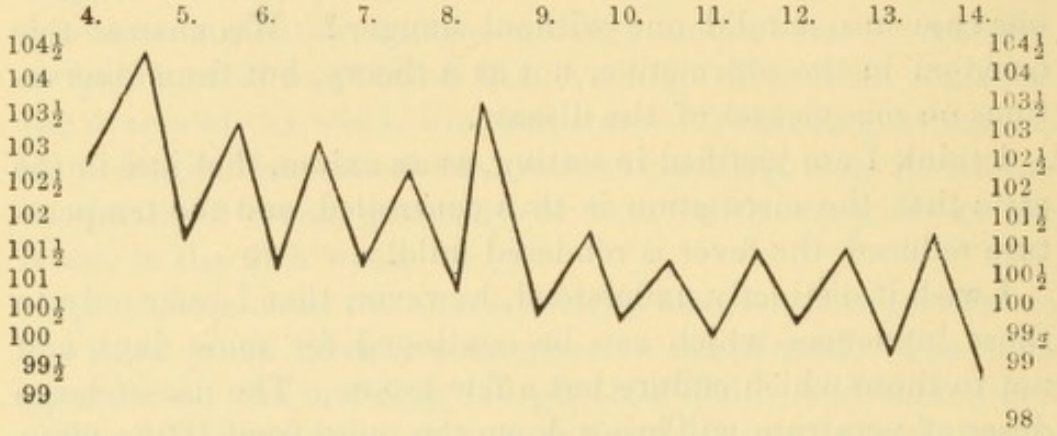
A fever terminates naturally—by a decrease in the frequency of the pulse, a diminution of the temperature, and the re-estab-

lishment of secretion—by which the cause of the disease is removed. If, then, by the use of sedatives, we lessen the frequency of the pulse, and obtain an equal and uniform circulation, with a corresponding decline in temperature, we find it easy to establish secretion from the skin, kidneys and bowels, by the usual means. And in a majority of cases these processes may be sustained by the use of nutritious food, and the use of small doses of the bitter tonics.

The following diagram will show the influence of such a treatment in the abortion of the disease, the patient being seen on the fourth day:

TEMPERATURE IN TYPHOID FEVER TREATED WITH SEDATIVES.

The upper points indicate evening, the lower points morning temperature.



COMPLICATIONS.—This form of fever is not unfrequently complicated by low forms of inflammation of various organs, and as the symptoms are obscure in many cases, much care must be used in the diagnosis. The principal complications are those named in the preceding form of fever, and, as the symptoms are the same, with the exception that they are of a lower grade, the reader is referred to that for description.

POST-MORTEM EXAMINATION.—Dissection shows the blood dark, fluid, diffluent, and the red globules partly broken down, with, sometimes, the presence of gas in the vessels. Frequently there has been transudation of blood from the vessels into some of the tissues, giving rise to dark discoloration, and ecchymoid spots. All the soft tissues are softened, but this is especially marked in the mucous membranes. In about eighty per cent. of cases, Peyer's glands will be found diseased; sometimes there is mere engorgement, owing to the deposit under the mucous coat of a yellowish-white matter; in the majority of cases there is ulceration, and sometimes the

ulceration has extended in width and depth, affecting the submucous, muscular, or even serous coats, occasionally ending in perforation. The mesenteric glands are very generally enlarged and softened, sometimes containing puriform matter. The other viscera of the abdomen occasionally suffer, but this is generally the result of a low form of inflammation, during the progress of the disease.

The lungs are often much diseased, even when not affected by inflammation, but this is referable to the predominance of the physical over the vital forces in the last days of the illness, they being congested and much softened, especially in their most dependent portions. Great prostration of the nervous system was a prominent symptom from the commencement, but we do not find sufficient lesion of the cerebro-spinal centers to account for it. Thus, in thirty-eight cases, examined by Chomel, there was injection of the membranes in four, œdema of the membranes in seven, slight softening of the brain in six, effusion of serum in ventricles in twelve, red points in nervous matter in five, increased density in two, but in fifteen there was no perceptible lesion.

Diagnosis.—In the first stage, the peculiar dullness of intellect, prostration of strength, and feeble pulse, is sufficient to determine the character of the disease. Then, the lax condition of the bowels, tenderness on pressure, typhomania, rose-colored eruption, dark coating of the tongue, sordes on teeth, etc., that gradually make their appearance, are so evident, that with care in the examination, the diagnosis will be very clear.

Prognosis.—In the early stage, if there is no complication, the prognosis is favorable, as in a majority of cases the disease can be modified, and its course rendered mild by the use of remedies. If complications should arise, the case becomes more grave, and the prognosis will have to be guarded. In the latter stages of the fever, if the nervous depression becomes less, with tendency to quiet sleep, brighter color of rose-colored eruption and petechiæ, turbid urine, natural stools, and soft, warm, and moist skin, the prognosis is favorable. But, if coma increases, with subsultus tendinum, hæmorrhage, involuntary discharges of fæces and urine, feeble

and intermittent pulse, cold extremities, fœtid perspiration, etc., the patient will probably die.

TREATMENT.—The objects of treatment in typhoid fever are three in number: to remove any unpleasant symptoms, and render the patient as comfortable as possible; to shorten the duration of the disease; and to control such morbid processes as might lead to a fatal result. It will be noticed that the *cure* of the disease is left out of this calculation; and it is so, for the very good reason that the natural tendency is to recovery in at least 97 per cent. of cases.

Treatment for the *abortion* of the disease will prove successful in but a small percentage of cases. Treatment to shorten its duration, will be successful in a larger percentage, arresting its progress from the 7th to the 14th days; it will fail in those cases in which the enteric lesion is early developed, and in those where there are other prominent complications. In these cases, when it is evident that the fever can not be checked, or when a first effort in this direction has failed, persistence in the use of means for this purpose will prove injurious. Here we will carefully control the morbid processes so far as we can, especially complications, and sustain the patient's strength, until the disease has run its usual course of three to four weeks.

The *abortion* of the disease must be attempted in the first two or three days of its progress, if at all. The most certain means of accomplishing the object is, the use of a thorough emetic, of which Lobelia forms a principal constituent. The Emetic Powder of the Dispensatory, or, what I prefer, the Acetous Emetic Tincture, will answer the purpose well. I commence its administration in small doses, frequently repeated, so as to occasion but slight nausea. The feet are put in a large bucket of hot mustard-water, and if the stomach does not bear the remedy well, a large sinapism is applied over the epigastric region. After administering it in this way for one or two hours, and sometimes twice this length of time—until the patient complains of feeling faint, and sedation is accomplished—the dose is increased to free emesis, using some stimulant infusion to aid its action. The emesis must be *thorough* and prolonged, giving a free and equal circulation of blood, and establishing the secretions.

Following this we put him on the use of Aconite and Belladonna in small doses, and in six or eight hours, give a full dose of Quinine. The sedative should be continued for several days, and Quinine or Strychnia given in small doses to sustain the action of the nervous system.

This is the only plan of treatment I would trust to accomplish this object, and it has proven successful in my hands in epidemic typhoid fever, in cases in which the enteric lesion was well marked. But, unfortunately, it will fail in a large number, and then the treatment sometimes proves injurious in the further progress of the disease.

In *simple* typhoid fever, the objects we propose are, to control the circulation, to establish secretion, to keep the stomach in good condition to digest a sufficient amount of food, to sustain innervation, and by these means aid nature to throw off the fever poison.

The first object is accomplished by the use of the sedatives, and we prefer, in this case, the use of:—

℞ Tincture of Veratrum.
Tincture of Aconite, aa. gtt. x.
Water, ʒiv. M

A teaspoonful every hour. If for the first day, the circulation is active, the Veratrum will be increased, but as the circula-

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TREATMENT (FROM FIRST EDITION).—The object of treatment at first, is the arrest of the fever, and this can be accomplished, in a majority of cases, by the seventh day, and before the severer symptoms make their appearance. The abortive treatment is the same as in the preceding disease, but I willrepeat it.

First, if there is evidence of morbid accumulation in the stomach, this must be removed, or all treatment will prove unsuccessful. I know from personal observation, that where the stomach is thus oppressed, typhoid symptoms rapidly supervene, and the probabilities are that the patient will die; and farther, that such accumulation in the stomach proves the cause of the rapid development of the enteric disease in many cases. In this case, an emetic precedes all other treatment, the Acetous Emetic Tincture, or Compound Powder of Lobelia and Capsicum being my favorite agents; if there is great prostration, a stimulant should be combined with them. The action of the emetic should be prompt and thorough, and aided by warm stimulant diaphoretic infusions, which should be continued afterward to produce diaphoresis, aided by the hot mustard foot-bath, and warmth applied to the body. As soon as the emetic has ceased acting, the special sedatives should be administered in doses just sufficient to continue the influence produced by it. If in the early part of the disease, the bronchial mucous membrane or lungs become affected, the same treatment should be adopted, with the addition of counter-irritation.

In other cases we commence the use of the direct sedatives, and here I prefer the Veratrum, associated with Asclepias.

tion is feeble, we decrease the Veratrum, and depend upon the Aconite.

In simple typhoid, the stomach is usually in good condition. As in the majority of cases, there is a slight increase in the color of the tongue and mucous membranes, we give a small portion of Dilute Muriatic Acid, or, in the opposite condition, an occasional dose of Sulphite of Soda.

Milk is the best food in this case, if it can be taken. It should be boiled, salted, and given hot. If it can not be taken, then give farinaceous foods, prepared with milk. Let the food be freshly prepared, and given at those periods of the day when there is least excitement, and the stomach is in the best condition.

The action of the sedative is favored by the daily use of the bath, which keeps the skin in a pliant condition, and favors insensible perspiration as the remedy attains its influence. This is aided by the occasional use of the hot foot-bath, or when there is great debility, by the use of hot bricks wrapped in cloths wet with vinegar, applied near the feet and legs.

℞ Tincture of Veratrum Viride, f3ss.
Essential Tincture of Asclepias, f3j.
Syrup of Lemon, f3ij. M

Administer a teaspoonful every hour If the skin is hot and pungent, the alkaline sponge bath should be employed, three or four times a day, but if there is deficient capillary circulation, with tendency to coldness of the extremities, a sufficient quantity of Tincture of Capsicum, added to water, to give the necessary stimulation, should be employed in its stead. The extremities must be kept warm, or the entire treatment will fail, because, if they are cold, with deficient capillary circulation in the skin, there is stasis of blood in internal organs, which suffer as well as the blood, and if sedatives are now administered, these conditions are increased, and though the pulse is diminished in frequency, it is also decreased in strength, with still farther congestion. Sometimes I find it necessary to order the frequent application of Tincture of Capsicum, or other strong stimulant, to the extremities, with the constant use of bottles of hot water, etc.

The dose of Veratrum named, is about the medium quantity: where there is evidence of congestion it will have to be smaller; if the febrile reaction is vigorous, it may be increased. I do not desire marked sedation under twenty-four hours, and many times not before forty-eight, or seventy-two hours. We will notice, that the above remedies used in this way, gradually decrease the frequency of the pulse, but it becomes more full, stronger, and especially better in parts far from the heart, with better innervation At last, the pulse coming down to eighty or ninety beats per minute, we observe evidence of commencing secretion. Now, diaphoretics and diuretics may be advantageously employed, the sedatives being continued in doses just sufficient to maintain its effect. The preparation of Asclepias, above mentioned, I use, first, for

As a general rule, excretion is established in proportion as the sedative attains control of the circulation. But when it is not, we may stimulate increased action from the kidneys by the use of Acetate of Potash, to the extent of one to two drachms daily. The bowels are not to be interfered with, unless we have special evidence of morbid accumulations, which are proving a source of irritation. In this case we administer a mild cathartic, as:—

℞ Fluid Extract of Podophyllum, ʒj.
Chloroform ʒj.
Compound Sirup of Rhubarb, ʒvi. M

One teaspoonful every six hours.

Under the above treatment we find the fever diminishing from day to day, and in the same proportion the functions of the body restored. As these results are attained, say from the fourth to the tenth day, we will find need of stimulating the nervous system. Here I prefer the following:—

℞ Quinine, grs. ij.
Hydrastin, grs. j. M

Three or four doses in the twenty-four hours.

The enteric lesion will sometimes require no special treatment in these cases, for though there is the two to four fluid

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its gentle stimulant and soothing influence upon the nervous system, and because it tends to stimulate circulation to the surface, but now it may be continued as a diaphoretic, or other gently stimulant agents used in its place. As a diuretic, I employ a weak solution of equal parts of Chlorate and Acetate of Potash, the medium dose of each being about five grains every four hours.

When secretion has commenced, but not before, we resort to Quinine to increase innervation. I generally employ it in the following combination:

℞ Quinia Sulphas,
Hydrastin, aa. ʒss. M

Divide into fifteen powders, the dose being one every three hours, being governed as we mentioned in the preceding disease. If it seems necessary, stimulants may be employed in addition.

Then, if the patient shows no tendency to sleep, about nine or ten o'clock in the evening, when everything has become quiet, a sufficient dose of opium should be given to induce sleep.

During this time, the patient should be freely supplied with diluents, and such light food as the appetite craves, and we think can be easily digested. Everything in the room and about the patient should be kept scrupulously clean, and the apartment thoroughly ventilated by admitting air from the sunny side of the house, and keeping an open fire in the room. Few persons should be in the room at a time, and the patient's mind kept calm; especially should care be used not to excite expectant attention in the patient by secret movements, whispered conversation, or by failure of attention at the time expected. More depends upon this, than is generally admitted by physicians.

evacuations in the course of the day, it does not prove exhaustive, or interfere with digestion, or the action of remedies. When tenderness of the bowels is developed with diarrhœa, we administer Sub-Nitrate of Bismuth in doses of five grains every three hours, or an infusion of Epilobium.

TREATMENT OF SEVERE TYPHOID FEVER.—We can gain a clearer idea of the treatment of these cases, if we study the separate lesions that increase the intensity of the disease. These relate to the condition of the stomach and digestion; to the condition of the circulation; to the condition of the blood; to the condition of the nervous system, and to the intestinal lesion. Recollecting that the general treatment, as given above for simple typhoid fever, will form the basis in the severer cases, we will but add the treatment for the complications.

We take note of two conditions of the stomach—the one where there is atony with morbid accumulations; the other

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We can not "kick nature out of doors, and depend upon the Materia Medica," as has been advised by a somewhat prominent physician.

When the disease has progressed for some days, and the blood becomes seriously affected, we may not be able to arrest it, at least not speedily, and we must adopt additional treatment to meet the development of low typhoid conditions.

The prostration of the nervous system is combated with Quinine, bitter tonics, stimulants, and the regular administration of small quantities of nourishment, as beef-tea, etc. When manifested by typhomania, or coma vigil, the Ammoniated Tincture of Valerian, with Camphor, Tincture of Cypripedium or Serpentaria, may be used with advantage. If there was imminent danger to the patient, and especially if the discharges from the bowels were copious, I would administer Opium, with Camphor and warm aromatic spices, the dose of the first being large enough to induce sleep, say from one to two grains.

To control the septic condition of the blood, acid drinks should be freely given, when desired by the patient. The Chlorate of Potash, combined with Hydrochlorate of Ammonia, is often useful. When the diarrhœa is profuse, the Chlorinated Soda or Labarraque's solution, is probably the best of the chlorides; its administration should be commenced in doses of fifteen drops, in aromatic water, every three or four hours, increasing it as the disease progresses, to thirty or forty drops. Yeast has been employed with advantage in doses of two tablespoonfuls every three hours, with an equal quantity of Camphor mixture. It is said by Dr. Stoker, "to correct the morbid contents of the alimentary canal, and the consequent symptoms of putrescence, petechiæ, and black tongue, being more effectually removed by it than by any other means."

With the exception of Quinine, I doubt much whether any advantages result from the administration of the bitter tonics. Stimulants additional to

of irritation and determination of blood. In both food can not be taken or appropriated, and medicine is neither received kindly, nor absorbed. In the first, the material in the stomach undergoes decomposition, and is absorbed to some extent, and passing into the intestinal canal, increases the irritation there, whilst the atony of this viscus influences the solar plexus unfavorably. In the second case, the irritation prevents the taking or digestion of food, or the kind reception and absorption of medicine. It is also a source of irritation to the entire system, increasing all the febrile phenomena. Evidently, we have here the causes that lead to a prolonged and severe type of fever, and to an increase of mortality.

The first case is diagnosed by the heavy coat at the base of the tongue, unpleasant taste in the mouth, and sensation of weight and oppression at the epigastrium. If the symptoms are marked, I prefer to commence the treatment with a prompt and thorough emetic, using the Acetous Emetic Tincture. This is followed by the use of the Sulphite of Soda in the usual doses, or in some cases by the Chlorate of Potash.

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those named are required in the advanced stage of the disease, but they must be administered with care; small quantities, frequently repeated, so as to keep up a continued influence, are beneficial, but under no circumstances, should the system be over-stimulated by large doses, and the stimulant then stopped, for the prostration ensuing might be fatal. Small quantities of bland, nutritious food should be regularly administered, and bland mucilaginous or acid diluents sufficient to satisfy the patient's thirst.

The patient's position should be frequently changed, and the bed shaken up beneath him, and the cover straightened out. This is necessary to prevent injurious pressure on any part, which might give rise to bed sores; if any part becomes tender, with dark discoloration, or blanched white appearance, dilute Tincture of Arnica, and means to remove the pressure from the part, should be employed. If bed sores form, they should be washed with a solution of Sulphate of Zinc, from gr. x. to gr. xx., to the ounce of water, and a dressing of mild Zinc ointment applied, the pressure being removed; this is generally sufficient for a cure.

If the disease exhibits a tendency to yield during the latter period of its progress, excretion should be aided by mild diaphoretics and diuretics, though under no circumstances, must an additional amount of heat be applied to hurry their action. As soon as secretion commences, Quinine may be given in increased doses with advantage. Convalescence must be managed with great care, when the patient has been thus prostrated. Nourishing food of easy digestion, taken in small quantities, with gentle stimulants and tonics, pure air, light, and sunshine, are required. As convalescence becomes established, animal broths, with easily digested solid food, may be taken, but strictly prescribed by the physician, as to kind, quantity, and frequency.

The elongated and pointed tongue, with reddened tip and edges, the center being coated white, or dirty-white; an unpleasant sense of constriction at the epigastrium, with tenderness on pressure; sometimes nausea, but frequently retching and ejection of the contents of the stomach once to three or four times a day. We put this patient upon the use of Aconite alone as the sedative, giving it in small doses. Associated with this an infusion of Peach Bark; Sub-Nitrate of Bismuth, or an infusion of Compound Powder of Rhubarb. I like the following formula:

℞ Sub-Nitrate of Bismuth, ʒj.
Spearmint Water, ʒij. M.

Shake well, and give a teaspoonful every one or two hours.

Counter-irritation over the epigastrium may be employed, but I prefer a towel wrung out of cold-water, or a cold pack to the entire abdomen; when the cold water is objectionable, we may sometimes use the hot fomentation with advantage.

The irritation of the stomach *must* be removed before other treatment is commenced, if we wish our remedies to be kindly received and absorbed, and to exert their curative influence.

The condition of the stomach with reference to the taking of food and digestion is an important element in the treatment of these cases. It may be stated as a rule that, however severe the disease may be, if the stomach will kindly receive and appropriate a moderate portion of food daily, recovery may be expected, and, conversely, no cases are more unfavorable than those where food can not be taken.

As a general rule, we find little difficulty in maintaining a moderately good condition of the digestive tract, employing such remedies as have been named. The use of acids and alkaline salts, indicated by the appearance of the tongue, is of especial importance in this regard.

There is a peculiar condition, marked by a *deep-red* tongue, without coating, except a transparent film of albuminoid matter, giving it a remarkably slick, glistening appearance. It indicates an entire arrest of function both of the stomach and small intestines. In this case I alternate with the Aconite, Liquor Bismuth in doses of gtts. xx. to gtts. xxx. Quinine inunction over the abdomen, with thorough friction with the hand; occasionally adding Oil of Cinnamon, or Cloves, or Chloroform, to render it stimulating, will be found of advan-

tage. Occasionally, in very severe cases, the local use of a solution of Strychnia in Dilute Acetic Acid, applied over the epigastrium, exerts a good influence. We use the remedy in this way because it can not be given by mouth, and as it is readily absorbed from the surface, we must be careful in regard to the quantity employed.

We have heretofore seen that the basis of all febrile action is a lesion in the circulation of the blood, and it is none the less so in this case. In these severe cases, we have, therefore, to determine accurately the condition of the circulation, and the remedies best adapted to give it freedom and equal distribution to all parts of the system, and to lessen its rapidity. The remedies employed are the sedatives, but the selection will be made with reference to the condition of the circulation.

Veratrum is preferred when the pulse is full, and there is much arterial excitement, the dose being proportioned to the condition of the patient. Veratrum with Aconite, in varying proportions, is employed in ordinary cases of typhoid. Aconite alone is selected when we have a markedly feeble circulation, and Belladonna with Aconite, when there is a tendency to congestion.

I attach much importance to the nursing of severe cases, with reference to occasional changes of position, to frictions with the hand, and especially to stimulant frictions, when there is a tendency to coldness in parts distant from the heart. The extremities *must* be kept warm, and the circulation to them free, if we are to expect success from our treatment.

As we have heretofore seen, the tongue is the best index to the condition of the blood, and will guide us in the selection of remedies. Either acidity or alkalinity of the system may be associated with sepsis, and an antiseptic treatment will be chosen with reference to these indications.

The *broad, pallid* tongue, with *dirty-white fur*, is occasionally met with, and indicates the employment of alkalies; the septic condition of the blood is indicated by the dirty fur. In this case we may order Bicarbonate of Soda, in quantity sufficient to render the drink of the patient pleasantly alkaline; or if there is a strong septic tendency, the typhoid condition developing rapidly, we will prescribe the Alkaline Sulphites. Of these I prefer the Sulphite or Hyposulphite of Soda, in doses of twenty grains every two or three hours.

In the majority of cases, we will find the tongue *deep-red*, and the coating having a shade of brown. Here we prescribe acids, dilute Muriatic Acid being preferable, if it can be taken; if not, then the vegetable acids.

I like the action of the Baptisia, in the advanced stages of the disease, both as an antiseptic and as a stimulant. Of an infusion, a teaspoonful may be administered every one or two hours.

In some cases a weak solution of Carbolic Acid may be employed for the same purpose. If used I would prefer it as in the following:—

℞ Carbolic Acid, (Crystals), grs. v.
Glycerine, ʒij.
Solution of Strychnia, ʒij.
Componnd Tincture of Lavender, ʒss. M

A teaspoonful every three hours.

(In place of Crystalized Carbolic Acid in the above prescription, Calvert's solution may be used, in the proportion of one drachm.)

In the first stage of the disease we recognize two conditions of the nervous system that demand special treatment.

The first is of *irritability*, with *determination of blood*. It is marked by nervous excitement, restlessness, sleeplessness, flushed face, bright eyes, increased heat of scalp, and sensitiveness to impressions both through the organs of special sense and general sensation. The special remedy in this case is Gelseminum. If there is much vascular excitement it should be combined with Veratrum, if the circulation is feeble with Aconite. The following recipe will give the proportions:

℞ Tincture of Veratrum, or Aconite, gtts. x.
Tincture of Gelseminum, ʒ.
Water, ʒiv. M

A teaspoonful every hour.

The second is of *atony*, with enfeebled circulation, and tendency to congestion. It is marked by dullness and hebetude, want of expression in the countenance, and impassiveness to ordinary impressions. The eyes are dull, pupils impassive or dilated, and if the face is flushed, the color is dusky. The special remedy in this case is Belladonna, as in the following

℞ Tincture of Belladonna, gtt. x.
Tincture of Aconite, gtt. x.
Water, ʒiv. M.

A teaspoonful every hour.

Insomnia may be controlled in the early stage of the disease by the use of the hot stimulant foot-bath; or the use of the hot bricks wrapped in cloths wrung out of vinegar, as heretofore named. These should be used late in the evening, at the usual period of rest. If the face and head are sponged, the bed and pillows shaken up, and the room well ventilated, we will find the disposition to sleep increased. Occasionally rubbing the scalp with Cologne or Bay-Rum will prove very agreeable. Even in those cases where this feature is extreme, we will sometimes find that careful attention to these means will prove sufficient.

When these are not sufficient, we may prescribe a nerve stimulant:

℞ Tincture of Lobelia, ʒij.
Compound Tincture of Lavender,
Tincture of Valerian, aa. ʒj.
Chloroform, ʒij. M

A teaspoonful, repeated two or three times at intervals of one hour.

In place of this, we may employ Opium with Quinine, which is more certain in its influence. Prof. King's prescription for this condition is:

℞ Compound Powder of Ipecac and Opium, ʒss.
Sulphate of Quinine, grs. vj. M

Divide in six parts, and give one every four hours. It answers an excellent purpose, and is indeed the best combination I have ever employed. But being very unpleasant to take, we will sometimes find it best to substitute:

℞ Sulphate of Morphia, grs. j.
Sulphate of Quinine, grs. vj.
Camphor, grs. iij. M

Divide in six parts, and give one at bedtime, repeating if necessary.

If the stomach will not tolerate these remedies, or if, as is sometimes the case, they cause too great excitement, we may use the hypodermic injection of Morphia, with a small portion of Strychnia, (say gr. $\frac{1}{8}$ of the first, and grs. $\frac{1}{40}$ of the second.)

In some cases, I have seen much benefit follow the use of an enema of Beef-tea and Brandy, given one or two hours before bedtime.

When tenderness of the bowels is first noticed, the use of dry cups, followed by the application of Tincture of Arnica, and Turpentine, to the abdomen, will be found beneficial.

Sometimes, warm stimulant fomentations produce a good effect. If, at this time, there is torpor of the bowels, with indications that retained feces are producing irritation, a *mild* cathartic, carefully administered, will be advantageous; *under no other circumstances, should cathartics be employed.* The diarrhœa may be controlled at first by the employment of Ipecac with the Aconite, gtt. x of the first. gtt. v of the last, to water ℥iv; a teaspoonful every hour. Bismuth may be used in some cases, Liquor Bismuth being the best form. In some the use of Dioscorea with the Aconite, and in others Tinct. of Nux Vomica with it, will fill the indications. In both cases there is abdominal pain, but in the first there is tenderness on pressure, and evident determination of blood, whilst in the second there is evident atony. Among the most certain remedies for this diarrhœa is an infusion of Epilobium; it may be given in doses of a tablespoonful every three hours. In rare cases the ordinary astringents may be employed. The means named will usually relieve tympanitis, but if not sufficient, Turpentine stupes may be used to the bowels, or an enema of Turpentine Emulsion or Tinc. Xanthoxylum.

TREATMENT OF TYPHOID FEVER IN THE ADVANCED STAGE.—If the treatment named has been followed, we will rarely have any difficulty, even in those cases which run their full course. When the disease has been badly managed, especially when cathartics, and other agents calculated to irritate the gastro-intestinal tract have been employed, the case assumes very unpleasant features.

When we take a case of this kind at an advanced stage, the indications for treatment will be as follows: 1st. To place the stomach in condition to receive and appropriate food, and have it given in such form and quantity as to support combustion and the strength of the patient. 2d. To control the circulation, so as to lessen its frequency, and increase its strength and freedom. 3d. To control septic processes. 4th. To increase innervation and husband its expenditure. 5th. To increase excretion.

In many cases we find the *dark-red* tongue, with *brown* coating, indicating the administration of acids. In this case, I would make the prescription as follows:

℞ Dilute Muriatic Acid. ℥j.
Simple Sirup or Glycerine, ℥iij. M

A teaspoonful every three hours.

In some cases we may add the Carbolic Acid, as in the following:

℞ Carbolic Acid (Crystals), grs. v.
Water, ʒj.
Strychnia, gr. ¼.
Dilute Muriatic Acid; ʒj
Simple Sirup. ʒij. M

A teaspoonful every two hours.

When the symptoms are very marked, we may employ an acid sponge-bath, adding Quinine when necessary.

When the tongue is *broad* and *pallid*, with *dirty-white* fur, the Sulphite of Soda in doses of ten to twenty grains, may be given every two or three hours. In place of this, or alternating with it, when it becomes objectionable to the patient, we may use the Chlorate of Potash in doses of five grains. In some cases, when the discharges from the bowels are very fœtid, the solution of Chlorinated Soda may be used instead of those named.

As a stomachic in this case, I prefer Quinine with Hydrastine, in small doses.

The food* needs careful preparation, and should be given with great regularity. Milk, prepared and given as heretofore named, stands first in the list of foods, and next the farinaceous foods prepared with milk.

In those cases in which the circulation is feeble, evidently from impairment of the muscular power of the heart, sometimes associated with impaired respiration from the same cause, we use animal foods. Beef essence, or a good beef tea, is employed here. The first is prepared, of the lean of beef, cut fine, placed in a bottle, and this in a vessel of water, and boiled for six or eight hours, when the fluid is strained off with pressure. A tablespoonful every one or two hours is sufficient in many cases, to relieve the unpleasant symptoms. A beef tea is best prepared by cutting up the lean of beef in a saucepan, covering it with cold water, and slowly bringing it to the boiling point; let it boil for five minutes; the fluid may be removed with pressure. An acid beef tea is prepared in the same way, the water being slightly acidulated with Muriatic Acid.

Alcoholic Stimulants are employed in typhoid fever as food. When the stomach is not able to receive or digest food, and until able to do so to the extent necessary to support life, we can employ them to advantage. They must be carefully used, however, given in small quantity at a time, and frequently repeated.

*See Principles of Medicine, p. 360.

The indications for the use of stimulants are not always plain. To supply combustion, they may be used as named above, when the stomach will not receive and appropriate food. If there is great prostration and delirium of a low muttering character, indicating feebleness of the heart's action, it is required. A tremulous state of the muscles, marked especially by a quivering of the hands and fingers, is a good test for the necessity of it; and so is the sharp, weak, but unequal beat of the heart. All these indicate that the nervous system is feeling very sensitively the destructive metamorphosis going on, and has its power lessened by its sensitiveness.

The sedatives are as important in the advanced stages, as at the first. We employ them here as stimulants to the sympathetic system of nerves, and expect that they will increase the power of the heart to do its work, at the same time that they overcome obstruction to the free circulation of the blood. We employ them in small doses, and are governed by the rules laid down in the first chapter, on diagnosis. Veratrum is employed when there is considerable strength to the circulation, Aconite when it is feeble, Gelseminum when there is irritation of the nerve centers, and Belladonna when the capillary circulation is especially feeble.

The means of controlling the septic tendency of the disease, have already been named. Those which have a special influence in aiding digestion are to be preferred.

We increase innervation in these cases by the employment of Quinine in small doses; or in place of this, Nux Vomica or Strychnia; or by the use of stimulants as heretofore named. We may readily determine when they are doing good, or when they are harmful, if we recollect that, if beneficial, they improve every function; if harmful, they impair function. Thus, if we find the pulse stronger and more free, the skin less dry, with a feeling of ease and tendency to rest, they are doing good. But, on the contrary, if the pulse is sharpened, the skin dryer and harsher, the mouth dry, and the patient restless, they are doing harm.

The rule for the administration of Quinine, as well as Strychnia and stimulants is, that with a soft pulse, moist skin, moist tongue, they can always be employed with advantage. But with a sharp, hard pulse, dry skin, parched tongue, and excitation of the nervous system, they had better be dispensed with.

We can do but little to increase secretion in this case, except by way of the skin. Here it is of great importance that we employ such means as we may, to restore its function of removing heat, as well as elimination.

When the skin is dry and harsh, I have found that fatty inunction with brisk friction, was decidedly better than baths. If there is need of topical stimulation, some of the essential oils may be added to the lard. Or in place of this, the use of Hydrochlorate of Ammonia in the proportions of one drachm to one ounce, will answer an excellent purpose. In some cases, Quinine can be used in this way much better than by mouth.

When it is not thus dry, but the circulation is very feeble, the use of Quinine with Brandy or Whisky, the extremities being thoroughly rubbed with it once or twice daily, will be found very useful.

TYPHUS FEVER.

This form of fever is, undoubtedly, different from any of the preceding, as it is determinate in its course, and presents a regular succession of all the febrile changes, among the most prominent of which is the appearance of a characteristic cutaneous eruption. Though there is, from the beginning, a marked tendency to *sepsis* of the blood, yet the fever may pass through all its stages without that manifest putrescency noticed in the latter stages of typhoid fever; this, however, is rare.

CAUSES.—The exciting cause of true typhus is, undoubtedly, an *animal miasm*, generated by the congregation of a number of persons in close apartments, without regard to cleanliness, as in jails, hospitals, ships, and the crowded and ill-ventilated quarters of large cities; or by the disease itself, the emanations from patients suffering from it being capable of propagating it to others. The miasm contaminates the air, and infects the healthy frame through the respiratory organs, either directly as it proceeds from the morbid source, or indirectly by means of substances capable of retaining it for a time, and of giving it out upon exposure to air. The predisposing causes are all those that weaken and debilitate the system, even if this debility is but temporary. Thus, as above remarked, the

emanations from a patient suffering from the disease being capable of propagating it, no person should visit such patients, or remain long with them, if suffering from but temporary prostration. The disease is not only contagious, but it is said that a "regular and fully developed attack seems to prevent a second, for many years afterward, if not forever." The stage of *incubation*, or time from exposure to the cause, to the full development of the fever, is usually from three to seven days, or even, sometimes, two or three weeks; but, occasionally, the cause being very intense, the attack may take place immediately on exposure.

SYMPTOMS.—The symptoms of the *forming* stage are similar to those in other forms of fever, indicating gradual arrest of function and nervous prostration. The *invasion* of the disease is marked by creeping sensations on the trunk and back, followed by shiverings, paleness of the surface, cutis anserina, heaviness and giddiness of the head, and more or less pain in the back and limbs; frequently there is considerable thirst. In a short time, these cold sensations are alternated with flushes of heat, which increase until reaction is permanently developed.

With the full development of reaction, the pulse becomes full and strong, though sometimes exhibiting evidences of oppression from the commencement; the countenance is flushed, the head confused, heavy or giddy, and the skin hot and turgid. The urine is scanty and high-colored, the bowels constipated, with frequently nausea and vomiting. After a restless night, we find that the heat of the skin has increased; there is still farther arrest of the secretions, but the nausea and vomiting have ceased. The weight of the head changes to stupor, with frequently *tinnitus aurium*, the giddiness has increased, and frequently the upright position can not be borne.

By the third or fourth day a *catarrhal* affection, peculiar to this fever, is developed. The eyes become red, the mucous membrane of the nose, fauces and mouth, are tumid and red, deglutition is difficult and painful, there is tightness and oppression of the chest, with frequently cough; both hypochondria are tense and painful. The patient is averse to making the slightest exertion, is impressed with difficulty, reasons

slowly, and is tardy in his answers; the tongue is generally protruded with difficulty, and is tense and tumid, uniformly dark-reddened, and coated with a dusky grayish brown coat, or entirely free from coating, but red and glistening.

Shortly an exacerbation occurs, which is sometimes preceded by epistaxis, and partial relief of the cerebral symptoms. About the sixth day, the surface of the body becomes turgid and of a somewhat dingy-red, and the eruption appears. "It is of a florid, reddish, or reddish-pink color, disappearing on pressure, but soon returning when pressure is removed. This circumstance is sufficient to distinguish it from petechiæ. The more exuberant resembles the measles, and has been mistaken for them; but it is more papillar, and rougher to the touch, being sensibly elevated to the eye; and although sometimes grouped or crowded, it does not coalesce so much as measles, but each papilla is more or less separate." On the second day, another exacerbation occurs, followed by a slight remission of a few hours duration, when the nervous stage of the disease is introduced.

The turgidity of the skin disappears, but the surface is still dingy-red, and the heat increased; the skin is dry, shriveled, and the epidermis brittle; petechiæ, or slight extravasations of blood under the cuticle, and frequently miliaria, make their appearance. The catarrhal symptoms all disappear, the breathing is free, but frequent, and the cough ceases, but is succeeded by more or less singultus. The tongue becomes parched and shrunk, and, if loaded, of a dark-brown or black color, or if clean, is red, smooth and glistening, resembling raw beef. The thirst is increased, but the torpor is often so great that the patient does not ask for drink, but takes it eagerly when offered; swallowing is impeded, owing to dryness of the mouth. The pulse is generally full and free, and not very frequent, but imperfect contraction of the artery may be noticed, after the heart's impulse. The bowels now become disordered, with frequent, loose, fœtid discharges, sometimes accompanied by pain in the bowels, and flatulent distension.

With the continuance of the disease, we notice an increased suppression of muscular power, and an increase of involuntary motion, as tremors, subsultus tendinum, and slight convulsions. There is impairment of the senses, deafness, defective vision, smell and taste. Typhomania makes its appearance,

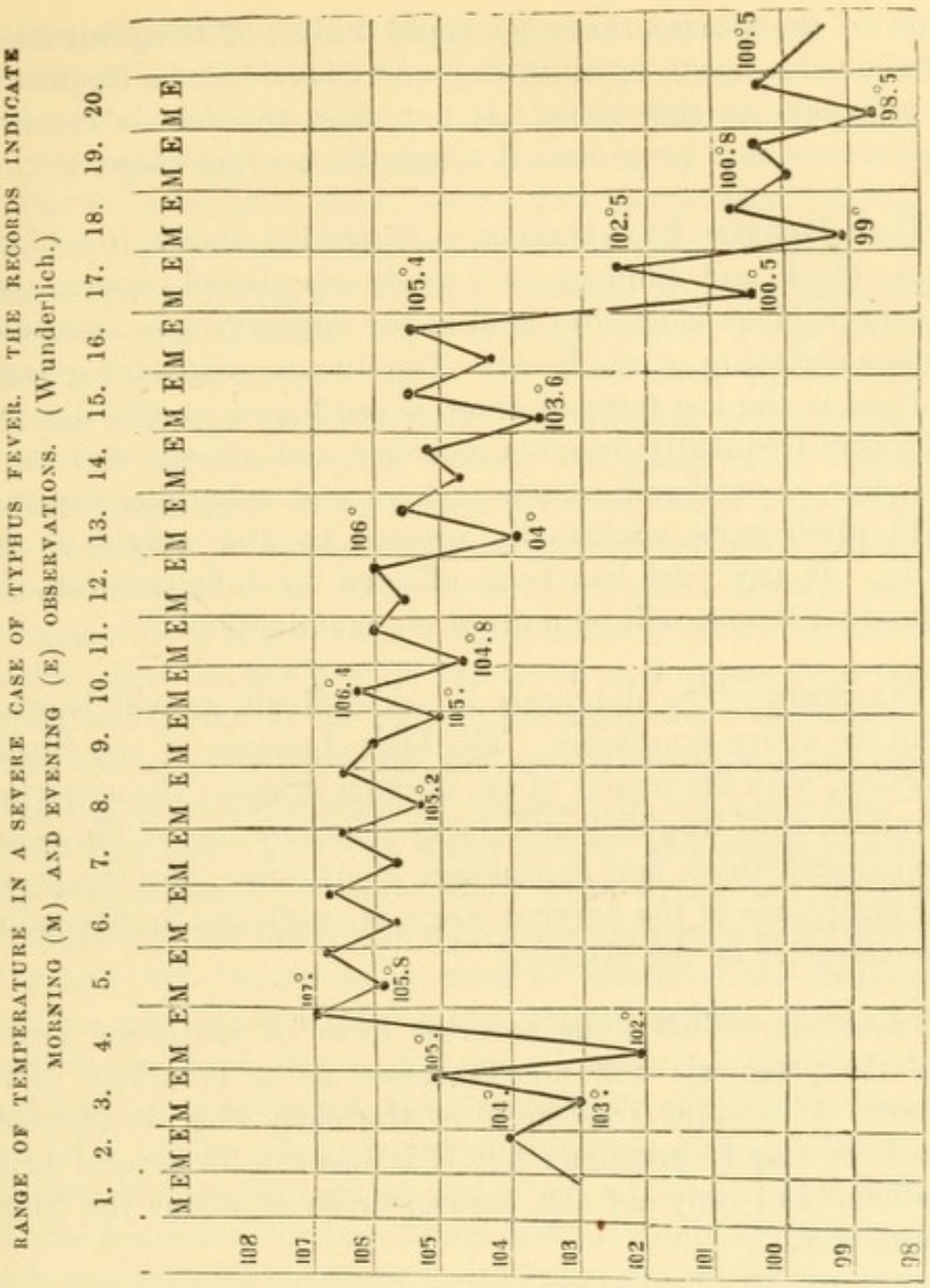
the patient dreams without being asleep, talks deliriously, is occupied with his internal impressions, and is with difficulty impressed by external objects.

The symptoms of the *crisis* are thus described by Copland: "At the end of the thirteenth day a more serious exacerbation than any former one takes place; the heat is more glowing, the arteries pulsate more strongly, the brain is more affected, and the stupor passes into sopor. In twelve hours afterward, and on the fourteenth day, the parched skin shows a tendency to perspiration. In some cases slight epistaxis occurs, with relief to the head; the nostrils become moist; the tongue, at the point and edge, moist, clean and red; and perspiration more copious and general. A free expectoration often takes place, especially if the chest has been affected. When the perspiration is salutary it is uniform, not clammy, has a peculiar smell, and occurs during sleep. The stools are now copious, loose and offensive; and the urine plentiful, muddy, high-colored, and deposits a copious sediment. With these changes, or in a few hours afterward, the patient seems as if he had awakened from a dream, or from a state of intoxication; and with the return of complete consciousness, all the severe symptoms abate. A sense of fatigue and weakness, soreness of the whole body, pale, hollow countenance, giddiness, deafness, and tinnitus aurium, drowsiness, or frequent inclination to sleep, tendency to perspire, quick pulse, and acceleration of it upon slight irritation or exertion, unnatural taste in the mouth, whitish tongue, etc., remain for six or seven days after the crisis; these symptoms gradually disappearing, the tinnitus aurium last of all."

If complications should arise during the progress of the disease, all the symptoms will be aggravated; it is not, however, so frequently complicated as the preceding forms of fever. The complications are generally of an inflammatory character, and the symptoms tolerably well marked.

The study of typhus fever is not so interesting to us as is typhoid, for it is rarely seen in this country, except on the seaboard and in large cities. In England and on the continent, it prevails in an endemic and epidemic form, and gives a larger number of cases than typhoid.

In examining the following diagram, we notice the rapid accession of febrile symptoms, as marked by a temperature of



103° the first, 105° the second, and 107° the third day. In its sudden accession it resembles *febricula*, or ephemeral fever; but in the latter, there is as sudden a decline. If we except the severer forms of eruptive fever, typhus has a higher range of temperature than any other disease. This, from the fourth day, with a temperature of 107°, continues pretty evenly to the seventeenth, with a temperature of 105½°. Then there is the rapid fall to 100°, and a low temperature to convalescence on the twenty-first day.

In a milder form of the disease, the range of temperature is high till the seventh day, when, with a marked exacerba-

tion of the disease, there is a rapid decline of temperature to 100° on the eighth or ninth day, and convalescence frequently commences at this time. If not, then the febrile reaction again rises, and progresses through the nervous stage.

POST-MORTEM EXAMINATION. — Dissection shows the blood dark, black, and diffluent, very rarely coagulated; sometimes, however, black clots are found in the larger vessels, and more or less softening of the heart. The disease of Peyer's glands, noticed in the last form of fever, is not found in this disease. The skin frequently presents petechiæ and vibices, and dark blotches, or even gangrenous eschars and sphacelus, are met with upon parts continually pressed by the weight of the body. If any part has been affected by inflammation, the attendant lesions will be noticed on examination.

DIAGNOSIS.—The diagnosis is not difficult, as will be seen from the above symptoms. The high character of the febrile reaction, with the torpor of the nervous system; the catarrhal affection, with turgidity and dusky discoloration of the skin; the exacerbations, and appearance of eruption; and the peculiar symptoms of the nervous stage, are sufficient to determine the character of the disease.

PROGNOSIS.—This is the severest form of continued fever, and the prognosis will not, therefore, be as favorable as in others. If prompt treatment in the early stage is adopted, the fever may be arrested; but if it has run for several days, medicine can only aid the natural crisis at about the fourteenth day.

TREATMENT. — In most respects the treatment heretofore named for continued fever will be the most appropriate for this. In fact, in all except the treatment for the arrest of the disease, it will be the same, and therefore does not need repetition. I should not be willing to say positively that the disease can be arrested, as my experience in its treatment has been limited; still, I believe that it can, as above stated.

The abortive plan, adopted in typhoid fever, may be pursued here; the administration of the special sedatives to reduce the frequency of the pulse, assisted by the alkaline sponge bath and friction; then the employment of diapho-

retics and diuretics, followed by Quinine and Opium. Free evacuation of the bowels, by unirritating remedies, is indicated at the commencement. I can better illustrate the treatment by reporting two successful cases.

John R., aged 13, a stout, robust boy, never was sick, and of healthy parentage. His grandfather, aged 58, had well marked typhus fever, which, from unbelief in physicians, was allowed to run into the nervous stage before I was called, having progressed eight days. He lived until the twenty-sixth day, marked putro-adynamic symptoms being present for the last eight days, with vibices, and gangrenous eschars on parts suffering from continued pressure. The boy, young as he was, was in almost constant attendance upon the old gentleman, until three days before his death. He was then attacked with a slight chill, lasting about two hours, febrile reaction came on, the heat of the trunk was intense, the face flushed and dark, but the extremities were cool; the nervous system was entirely prostrate, the stupor being so great that no intelligible answer could be obtained to my questions. I immediately had a kettle of water heated, and strongly saturated with mustard; woolen cloths were wrung out of this, and applied to the lower and upper extremities, bottles of hot water and hot bricks being used to continue the heat; a sinapism was applied the entire length of the spine. A strong infusion of the Compound Powder of Lobelia and Capsicum being prepared, I commenced its administration in doses of a teaspoonful every five minutes, giving with the first dose, Podophyllin gr. ss., Jalap gr. v. The emetic infusion was continued for two hours before vomiting came on, which was assisted by Black Pepper tea; the emesis was thorough, and attended by complete relaxation, slight perspiration, an equal circulation of the blood, and return of consciousness. The cathartic operated freely in about two hours afterward. Though the severest symptoms had passed off, the patient was as much prostrated as he would have been by a week's severe illness. Quinia, gr. iij., Tannic Acid, gr. j., were then administered every three hours, until three doses had been taken; afterward, three doses per day; an infusion of Asclepias Tuberosa was given freely, and heat continued to the lower extremities. The patient was able to sit up the fifth day. Now this might not have been typhus fever, and

yet from the boy being so closely confined with a person suffering from undoubted typhus, it was reasonable to suppose that it was the same disease.

The second case likewise originated from contagion, the young man having been in attendance on the same patient. In this case, the premonitory symptoms existed for three or four days, terminating in a marked chill, which was followed by as high febrile action as I ever witnessed, with the same stupor and lurid appearance of the countenance. In this case I directed Tincture Veratrum Viride, in doses of three drops every hour in infusion of Asclepias Tuberosa, the latter to be taken freely, the alkaline sponge bath, and brisk counter-irritation to the spine. Ten hours afterwards the fever had not abated, the skin being intensely hot, I used the *cold, wet sheet pack*, continuing the sedative; in a short time the heat abated, the pulse was reduced in frequency, when Quinine was administered as before, the sedative being continued, and the patient convalesced readily.

I am just as well satisfied, however, that if the fever continues beyond the seventh day, the abortive plan of treatment will be a failure. The treatment named for the latter stages of typhoid fever should, therefore, be adopted, being governed entirely by the condition of the patient.

ERUPTIVE FEVERS.

This class of diseases is propagated by a *specific contagion*, which, gaining access to the blood, generates the same specific virus, and is then thrown upon the surface in the form of an eruption. These diseases are most frequently contracted by the inhalation of gaseous exhalations from a person suffering from the disease, or from the discharges, and also by personal contact, the morbid material being absorbed from the skin. The most of them may likewise be communicated by *inoculation*, or the introduction of the *virus*, or even the blood of a patient suffering from disease, under the epithelium by puncture, or from any part of the body, if there is an abrasion. They are not only contagious, but they sometimes become *epidemic*, which is undoubtedly occasioned by some change in the constitution of the atmosphere, inappreciable to us, but which

favors the spread of the specific poison. These affections differ from all other forms of fever, in that an attack protects the individual from ever having the disease again, even though being exposed to the cause; to this there are some rare exceptions.

Liebig thus accounts for the disease, and its protective influence: "When a quantity, however small, of contagious matter, that is, of the exciting body, is introduced into the blood of a healthy individual, it will be again generated in the blood, just as yeast is produced from wort. The condition of transformation will be communicated to a constituent of the blood; and in consequence of the transformation suffered by this substance, a body identical with or similar to the exciting or contagious matter will be produced from another constituent substance of the blood. The quantity of the exciting body newly produced must constantly augment, if its further transformation or decomposition proceeds more slowly than that of the compound in the blood, the decomposition of which it effects. * * * In the abstract chemical sense, reproduction of a contagion depends upon the presence of two substances, one of which becomes completely decomposed, but communicates its own state of transformation to the second. The second substance thus thrown into a state of decomposition is the newly-formed contagion. * * * When the constituent removed from the blood is a product of an unnatural manner of living, or when its formation takes place only at a certain age, the susceptibility of contagion ceases on its disappearance. The effects of *vaccine* matter indicate that an accidental constitution of the blood is destroyed by a peculiar process of decomposition, which does not affect the other constituents of the circulating fluid."

It will not be necessary to refer again to the causes of these eruptive fevers. It might be remarked, however, that some persons are exempt from this influence through life; others may be exempt from it at certain times, and thus be exposed several times and not be affected by the contagion, but afterwards upon exposure the disease will be contracted.

In some cases the influence of the contagion does not cease with the formation of the specific virus, but originates a septic decomposition of the blood, giving rise to putro-adynamic symptoms, which frequently result in death, sometimes even before the appearance of the characteristic eruption.

VARIOLA.

SMALL-POX.

SYMPTOMS.—The symptoms depend much upon the constitution of the patient, the intensity of the cause, and the state of the atmosphere, whether epidemic or not. The disease has been divided into several varieties by authors, according to its intensity; we need notice but two: the *discrete* and *confluent;* the first mild, the points of eruption being distinct and separate, the second severe, the eruption being profuse, and so closely situated as to run into one another. In describing the course of the disease, the symptoms of the discrete will be first named, and followed by the confluent. We divide the disease into three stages: 1st, of *incubation;* 2nd, of *maturation;* and 3d, of *decline.*

Stage of Incubation.—This comprises the period from exposure to the cause, to the development of the chill, and may be from seven to sixteen days, usually about twelve days when the disease is contracted in the natural way. At the time of exposure the patient may feel unpleasantly impressed by the morbid poison, yet frequently no notice is taken of it. Generally about the sixth or eighth day the disease begins to manifest itself by a sensation of weariness, languor, and irregular appetite and excretion. These symptoms increase until the day preceeding the chill, the patient now feeling so bad that he can not follow his usual employment; in addition to the symptoms named, the patient now complains of soreness of the muscular tissues, pain in the back, weight and heaviness in the head, and more or less nausea.

The chill varies in intensity, sometimes it is but slight; chilly sensations pass over the body, which after some time are attended with flushes of heat; more frequently there is well-marked coldness of the surface, and again a well-developed rigor. The chill varies in duration from two to four or even more hours. During this period the pain in the back and limbs becomes more marked, and there is sometimes nausea and vomiting.

With the development of febrile reaction, the skin becomes hot, the pulse accelerated, the bowels constipated, the urine scanty and high-colored, pain in the head, with greatly

increased pain in back and limbs; sometimes the pain is so intense that the patient can not get rest in any position. In the mild or discrete form, the fever may be about as high as common continued fever, though in mild cases, it is sometimes very slight. In the severe, *confluent* form of the disease, the fever is generally intense, the pain severe, and the patient extremely restless; frequently delirium makes its appearance on the second or third day. In some fearfully intense cases there is marked torpor of the nervous system from the beginning, which is speedily succeeded by low delirium or stupor; the skin being hot, pungent, turgid, and dusky, or the heat confined to the trunk, the extremities being cold.

At the end of forty-eight hours from the chill, the eruption usually begins to manifest itself in the form of minute, reddened papulæ, at first on the face, wrists, breast, and where the skin is thin and delicate, gradually extending over the entire surface, becoming complete about the end of the third or fourth day. When the fingers are passed over these papulæ, they feel like small tubercles in the true skin, about the size of a pin's head; a minute vesicle forms on the apex of each within twelve or twenty-four hours after its appearance, which, enlarging, forms the small pox pustule. In the discrete form of the disease, these papulæ are not very closely set together, sufficient room existing between them for their full development; they are usually grouped together in threes or fives, with considerable space between the groups. In the confluent form they are closely set together, being very numerous, so that when developed they press against one another, giving rise to erosion of their walls and final coalescence. In the mild form the fever becomes much mitigated upon the appearance of the eruption; but in the other there is frequently little or no decrease in the fever, delirium being present in many cases.

Stage of Maturation —This stage embraces the period from the appearance of the eruption to its full developement and rupture, usually, eight or nine days. The course of the eruption is as follows: The small vesicle increases in size as it fills with a clear whey-colored fluid, and is bound down in the center, giving it an umbilicated appearance. About the third or fourth day of the eruption, a red areola appears around the base of each vesicle; commencing intumescence of the skin may be seen, and sometimes the tissue that held down the center gives

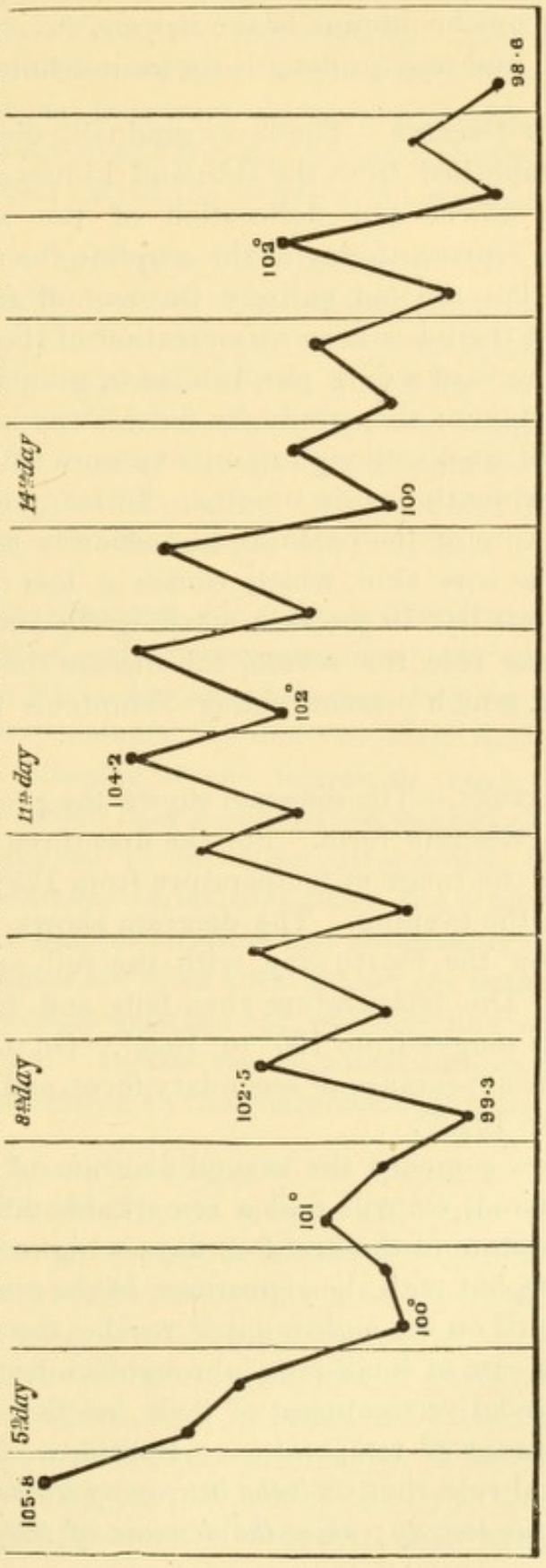
way, and the eruption becomes pustular, and of a somewhat conical form. From the fifth to the eighth day the pustule maturates, the surface becoming rough and yellow, and the cuticle breaking allows a portion of the contents to ooze out, which desiccating, forms the scab. At the commencement of maturation the tumefaction of the skin increases; in the confluent form, the swelling being so great as to close the eyes and efface all the features. The desiccation of the scabs is complete from the eleventh to the sixteenth day of the eruption, when they commence to fall off.

During the period of maturation the symptoms vary greatly. In the mild or discrete form, the fever is never very intense, though it may be continuous, frequently being intermittent, appearing only in the after part of the day. In the confluent form, the fever is more or less intense and continued; frequently there is continued restlessness or delirium. In severe cases there is stupor or delirium; the skin is hot, dry, and hard; the eruption comes out on the mucous membranes of the mouth, nose, pharynx, and sometimes larynx or bronchii, attended with tumefaction. This gives rise to difficulty in deglutition and respiration, which is increased by the secretion of a tough, viscid, and ropy mucus, requiring a constant exertion on the part of the patient to keep the passages free. If this affection of the mucous membrane is severe, we notice symptoms of gradual asphyxia, luridity of the lips, duskiness of the countenance and sometimes of the entire surface, with rapid prostration.

In some extreme cases, in addition to the symptoms of prostration above named, the papulæ, when they first make their appearance, become dusky, the skin livid, the pulse sinks, extremities become cold, and the patient dies before the formation of the pustules. In other cases, the areola becomes purplish and livid, and instead of normal maturation the pustules are filled with a sanious fluid, or blood, petechiæ make their appearance between the points of eruption, symptoms of prostration ensue, and the patient speedily dies.

On the eighth day of the eruption, or the eleventh of the fever, secondary fever ensues. This, in the discrete form, is not very severe; but in the confluent is generally as high as it was at first. In the latter case, it usually continues from two to four days, when it gradually declines; during this time there is

frequently delirium. In some cases, this secondary fever is extreme, accompanied by low delirium, a rapid, weak pulse,



TYPICAL RANGE OF TEMPERATURE IN A CASE OF NATURAL SMALL-POX, COMMENCING WITH THE THIRD STAGE; THAT IS, FROM THE PERIOD OF THE ERUPTION, ON THE EVENING OF THE FOURTH DAY FROM THE BEGINNING OF THE SICKNESS. (Wun.)

and great prostration, when the patient is in imminent danger. Sometimes complications arise during this secondary fever, as inflammation of some part of the respiratory apparatus, the brain, mucous membrane of the bowels, etc., which greatly aggravate it, and may prolong it for an indefinite time.

STAGE OF DECLINE.—The fever gradually disappearing, secretion is established from the skin and kidneys. The tumefaction goes down, and desiccation of the scabs progresses. About the fourteenth day of the eruption the scabs begin to be detached, but are not entirely thrown off for two or three weeks. If there has been no ulceration of the skin, the site of the pustules is of a dark purplish color, giving the skin a mottled appearance; this gradually fades away and disappears in six to eight weeks, though upon exposure to cold they can be noticed frequently for six months. In many cases, at the time of the rupture of the pustules, ulceration is established at its base in the true skin, which causes a loss of structure, and there are pits left in the skin marking the site of the pustule. As a general rule, the severer the disease the longer the convalescence, which presents similar symptoms to that of other fevers.

TEMPERATURE.—The diagram shows the progress of the disease in the discrete form. For the first three days the fever is active, and the range of temperature from 103° in the morning, to 105° in the evening. The diagram shows the temperature of 105.8° on the fourth day, with the full appearance of the eruption. The temperature then falls, and for the next five or six days ranges from 100° to 102½°. On the eleventh day there is the appearance of secondary fever, and the temperature increases to 104.2°.

If we now compare the second diagram of modified small-pox, (varioloid) we will find a remarkable difference. In this the temperature of the first four days is higher than in the preceding case, but with the appearance of the eruption it declines rapidly, until on the eighth day it reaches the normal standard.

When a case of small-pox is brought under the influence of the usual sedative treatment of fever, we find nearly the same modified range of temperature. Indeed, we may lay it down as a general rule, that, *as is the increase of temperature in this disease, so is its severity; as is the decrease of temperature, so is its*

mildness. This has reference to the average temperature during its progress, and not to the temperature on any one day.

Remedies that control the circulation, reducing the frequency of the heart's action, lessen the temperature. They also place the system in favorable condition for the establishment of secretion. And, as has been very clearly established, the small-pox virus can be removed through the general apparatus for secretion, and to this extent the eruption is lessened.

COMPLICATIONS.—Small-pox may be complicated with any disease, but generally they are of an inflammatory form. The principal complications are of the mucous membrane of the bronchial tubes, the substance of the lungs, the bowels, and cerebro-spinal nervous system, the symptoms being generally well marked. Affections of the eyes are not unfrequent; but, with the exception of inflammation, treatment will have to be postponed until after the disease has run its course.

POST-MORTEM EXAMINATION.—If a person dies with small-pox, it is either because of septic decomposition of the blood, or of some complication which has arisen during the progress of the disease. In the first instance, we find the blood dark and diffluent, with great softening of the tissues, so much so, that I have seen cases in which they could not be washed or dressed, but had to be wrapped in the sheet upon which they died. The external appearance varies, sometimes the eruption is exceedingly profuse, but maturation has progressed normally; at others, the pustules are filled with sanies, are dark colored, with petechiæ or vibices between the pustules, and sloughing of parts pressed upon. In the case of complications the local lesions will vary according to the character of the disease.

DIAGNOSIS.—In the earlier stages of the disease the diagnosis has to be made between this and measles and scarlatina. This is not very easy, yet as measles is almost always attended by catarrhal symptoms, cough and watering of the eyes, this will be of some assistance. Upon the appearance of the eruption the distinction is not difficult, the papulæ of small-pox being firmer and deeper seated than measles, while in scarlatina there is merely the exanthematous redness. From varicella, the diagnosis is made by the mildness of the fever, the vesicles full of serum on the first day of eruption, their irregular ap-

pearance, absence of the central depression or umbilicated appearance, irregular and oblong form, and formation of crusts by the fifth day, at which time small-pox is just forming its areola and commencing to maturate.

PROGNOSIS.--The prognosis is favorable, except in those cases in which evident symptoms of disorganization of the blood make their appearance, or those complicated with severe local disease.

TREATMENT.—This disease has a determinate course to run, and, therefore, can not be arrested. There is no doubt, however, but what it may be modified by treatment, and rendered comparatively mild, and its duration shortened. If the doctrine of contagion heretofore advanced is true, means that would lessen the intensity of the febrile exacerbation, would prevent an increased generation of virus, and the same would be accomplished by so keeping the surface that the eruption could readily be thrown out. Now whether these are facts or not, I know that when this is accomplished, the eruption is comparatively light.

Before the eruption, as we have no positive means of determining that it is small-pox, we would treat it the same as any other fever. For instance: if there was nausea, with indications of morbid material in the stomach, an emetic should be employed; if there was constipation, a mild cathartic. The special sedatives should be employed to lessen the febrile reaction, assisted by the frequent use of the alkaline sponge bath. The patient should not be kept too warm, neither should heating remedies be employed to cause determination to the skin. If there is much restlessness, sleeplessness and delirium, Opium may be used with advantage.

If such course is pursued, few severe confluent cases will be met with. *All heating and irritating applications to the skin, and internal remedies calculated to produce determination to the surface, will increase the eruption and aggravate the disease.* When the eruption makes its appearance, we continue the same treatment, though the sedatives will now be used in small doses. The sponge bath, two or three times daily, should still be used, and continued until maturation is complete; Castile soap and warm water is the best that can be used. Those who have never adopted this plan would be surprised to see the influence

that is exerted upon the system by keeping the skin thoroughly cleansed. To prevent pitting, the room should be kept dark, and the face not exposed to the action of heat and light; in addition, all that is required is the free but gentle use of soap and water, and the application of sweet oil, when the pustules commence to rupture, to keep the skin soft. During the period of maturation the patient needs constant support, and should therefore have a light and nutritious diet; cornmeal gruel is the best article that I have ever employed. If strict cleanliness has been observed, there will be but little secondary fever.

Having thus given a general outline of the treatment of small-pox, it will be well to call attention to some particular phases of it, and to certain means which are of more than usual importance. Whilst it is true that the disease has a "determinate course to run," and "can not be arrested," we must not forget that we have means which will modify its progress, and make a mild case of one which might have been severe. This is proven by the experience of the profession in the "inoculation for small-pox."

Inoculation. Before the introduction of vaccination as a means of prophylaxis, persons were inoculated with small-pox virus, and by care in diet, rest, and some simple remedies, the disease was rendered mild in the majority of cases. Let us see how this was done. The person to be inoculated was to be in good health—the person taking it in the natural way was to be in good health. From the time of inoculation the patient was restricted in his diet, and confined principally to calorifacient food—histogenetic foods evidently furnish food for small-pox. They would have small doses of mild cathartics, usually salines, from time to time, and occasionally diaphoretics, thus increasing elimination. And they would have rest, and baths previous to the breaking out of the disease.

If the disease could be thus modified, and there can be no doubt but it was, we can employ means that will modify it, when it is taken in the natural way. In addition to what has been named, I wish to call attention to some special means.

Macrotys. For fifty years this remedy has had a reputation in the cure of small-pox, and it is well worthy our attention in some cases. The common indication for the remedy is *muscular pain*, and this we will sometimes find marked for two

or three days before the chill, frequently associated with a small pulse. Intense pain is also one of the characteristic features of the first twenty-four or forty-eight hours. If, therefore, we have reason to believe a small-pox is developing, we may give Macrotys, as we may in the first stage of febrile re-action.

Sulphite of Soda. I believe that there are cases in which it may be known that the person is having small-pox in the forming stage. We know that they have been exposed, and have not been protected by vaccination; and in any case we have reason to suspicion it, when six or eight days after exposure they commence to complain of langour, loss of appetite, pains in the back and elsewhere, and general impairment of function. Examine the patient's tongue now, and in eight cases out of ten, it will show *pallid* and *dirty* to some extent, as in the fully developed disease. In this case give the Sulphite of Soda, being sure that it will modify and render it mild.

In the developed disease, Sulphite of Soda is a prominent remedy. Do not forget the indications—a *pallid dirty* tongue, moist; and we frequently have this so well marked that there can be no mistake. Give it in doses of ten to twenty grains every three or four hours, let the patient wash the mouth with it, gargle the throat with it, and use a solution as a general bath.

Saracenia Purpurea. This remedy has been recommended as a specific for small-pox, frequently aborting the disease. It was introduced to the profession by Mr. Lane, of Nova Scotia, and his reports were endorsed by Dr. Herbert Miles of the British Army. But it has been tested in different parts of the United States and found wanting. How is this? I have reason to believe that the discrepancy in the results is due to the quality of the medicine, and that both are correct. In Nova Scotia, they employed the plant of that locality, gathered at the proper season, and carefully preserved. In the United States they used the drug of the market, which was not of the proper locality, not gathered at the right season, and old and worthless. I am satisfied that the fresh plant will show decided properties in curing small-pox.

Baptisia. This remedy has a most decided influence in the worst cases of small-pox. The indication for its use is the common one, deep red, dusky or livid coloration of mucous

membranes or skin; tissues look full and lifeless, as if they would slough. Those who have seen much of small-pox will recall these symptoms as among the worst met with, and they are sometimes seen as early as the first day. In this case we prescribe Tinct. of Baptisia gtt. x to gtt. xx, Water ℥iv; a teaspoonful every hour. It is generally used in combination with the indicated sedative.

Rhus Toxicodendron. We have a group of very unpleasant cases in which burning of the surface, and burning pain in the eyes, are prominent symptoms. The tongue will be found somewhat pointed and reddened, and the tip will show the characteristic indication for Rhus. Occurring in children we will find them suddenly crying out in their sleep, and waking as if frightened. In these cases, Rhus is one of our most certain remedies. I prescribe it in doses of gtt. v to gtt. x, to water ℥iv, with the proper sedative.

Ventilation. It is very difficult to get good ventilation in cases of small pox. First there is the darkening of the windows, which is thought necessary to prevent pitting or injury to the eyes, and in this darkening, shawls and blankets are frequently used, and nearly every breath of air shut out. Then it is the common impression that persons are very liable to "catch cold," and have the eruption "driven in." And lastly, they are afraid of the spread of contagion, and they keep everything tightly closed to prevent the small-pox getting out.

It is well at first to protect the patient's face against light and heat, but simply closing the shutters or drawing down the blinds is sufficient. There is more injury from the patient sitting before a hot fire, so far as stimulating an excessive eruption upon the face, than from light, though both may be avoided. But be sure that there is free ingress to the air by windows, and free egress through an open fire-place, if it can be so arranged. There is nothing like an open fire to give good ventilation, and it may be classed among the remedies for small-pox

Disinfectants. Let it be remembered that cleanliness is of paramount importance in this disease, which is one of the most loathsome to which man is subject. We have already placed stress upon bathing with soap and water, and I would place quite as much upon change of clothing, cleanliness of bedding, and of the room. But even yet there is an unpleas-

ant odor, the more marked the severer the case of small-pox. It seems almost impossible to free the air from it, no matter how well we have the room ventilated, and yet we have reason to believe that it is a continuous cause of disease to the patient. Hence disinfectants are useful here, if, as we believe, they destroy the atmospheric germs of disease.

If Sulphur is burned in the room, Sulphurous Acid gas is set free, and this is one of the best means of disinfection. If we place a portion of Sulphur on a tin dish and hold it over the chimney of a coal-oil lamp, we may disengage the Sulphurous Acid. In place of this, and when it is offensive, we may use the solution of Chlorinated Soda, with the common air-spray apparatus. It may be thrown about, or under the bed, and even so charge the air that the patient will inhale it.

In those cases where marked lividity of the surface presents itself, with great nervous prostration, an emetic should be administered and the warm bath prescribed. Where there are indications of serious lesions of the blood, those antiseptic agents named under the head of typhoid fever should be used.

NOTE.—With regard to treatment of smallpox, we may say that the old but yet common treatment, vibrating between cathartics and stimulants to the surface, is the worst that can possibly be adopted, and will always yield a large mortality. If you add to this, darkening of the windows by heavy quilts and comforts, the stopping of every crevice that would admit air, and continuously accumulating dirt because it can not be seen, and over-heating by stoves, all the cases will be unpleasant, and it will be very contagious as well as fatal.

It is a well known fact that the disease is severe and dangerous in proportion to the amount of eruption upon the surface—discreet smallpox being mild, confluent smallpox severe. Why then should we over-stimulate the skin, to get a large crop of eruption? The practice of inoculation proves to us that a considerable portion of variolus poison may be removed by way of the excretory organs, and that the blood may be freed from the poison with a very moderate amount of eruption. Let us see that our cases so progress that we may have these results.

The disease is also dangerous from the septic process set up in the blood, giving rise to those symptoms known as typhoid. This should teach us the use of the class of remedies known as antiseptics.

Let me put the treatment for the ordinary case of smallpox in a form that no one can mistake. It consists of—cleanliness, fresh air, a moderate temperature, food, the sedative, Macrotys, the antiseptic. We must have cleanliness—of the room, of the clothing, of the person. We must have a sufficient supply of fresh air and good ventilation, to keep the patient from being poisoned by his own exhalations. The disease is exhaustive, and we must have food, in the shape of corn meal gruel, animal broths, or milk, to support the drain upon the blood. The temperature should be equal, yet not high.

VARIOLOID.

Varioloid is small-pox modified by the vaccine disease. In some persons the cow-pox is but partially protective, or it may be wholly protective at first, but as time passes the susceptibility to the virus of small-pox is gradually reproduced. Upon Liebig's theory, the *material* in the blood, upon which the small-pox poison acts, is reproduced in smaller quantity.

Varioloid is small-pox in every sense. It is produced by the specific contagion of small-pox, and in turn it generates a virus which will give rise to the fully developed disease in a person not protected by vaccination.

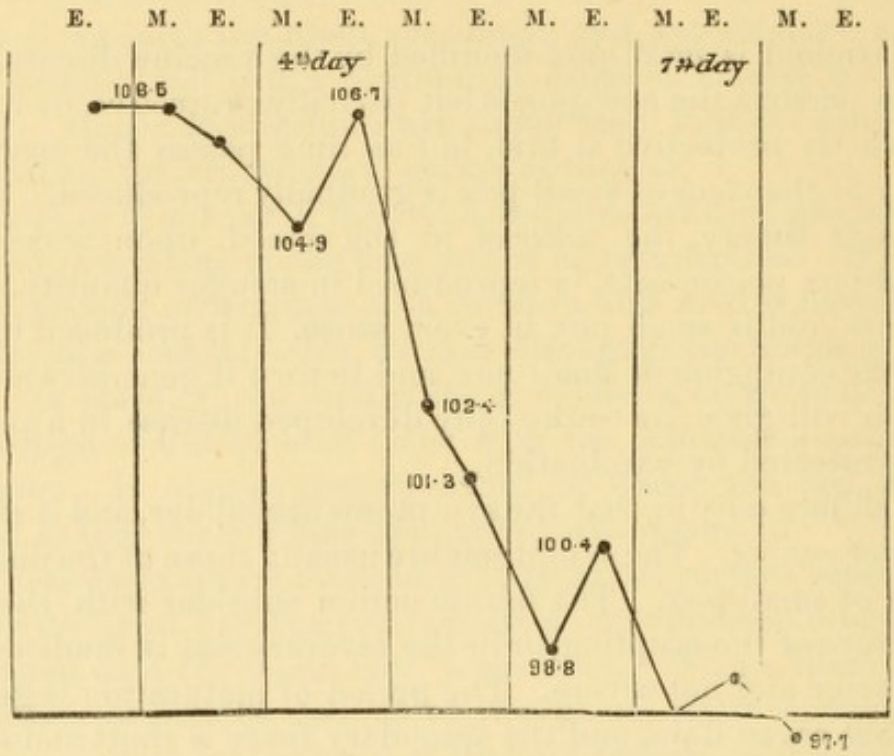
It differs only in that the symptoms are milder, and it runs a shorter course. The symptoms are usually those of the discrete form of small-pox. The febrile action subsides with the appearance of the eruption, or in the severer cases is remittent in character and not severe. The period of maturation is generally but seven days, and the secondary fever is short and mild. The desiccation and removal of the crusts or scabs are also rapid, so that by the twelfth to the fifteenth day the surface is pretty well freed from them.

Smallpox is a fever, and among the prominent symptoms are a frequent pulse and a high range of temperature. For these employ the sedatives—Veratrum or Aconite in *small* doses, associated with the bath. It will not do to use large, depressant doses of the sedatives.

A prominent feature of the early stage of smallpox is pain, resembling that we have in rheumatic fever. It is the pain for which we would give Macrotys in any other case—give it here. The rule is, that whenever the symptoms point to a remedy clearly, it should be given, no matter what the name or character of the disease. This Macrotys pain is so prominent a feature of smallpox the first days of the febrile reaction, that it has been regarded as a pathognomonic symptom. Macrotys gives very marked relief, and whilst I am not able to endorse it as a *specific* for smallpox, as some have claimed, it is a part of a good treatment.

In severe cases of smallpox, blood poisoning—sepsis—is one of the prominent and dangerous features. The virus of smallpox in the blood, whether in large or small quantity, produces the symptoms of sepsis in some degree. Thus the odor, so peculiar as to be diagnostic, is the odor of decomposing animal matter. The antiseptics, therefore, become important remedies. We select them here, as we do in other cases, giving Sulphite of Soda, Sulphurous Acid, Muriatic Acid, Chlorate of Potash, or Baptisia, as they may be indicated. The Sulphite of Soda is indicated in the larger number of cases, and the pallid, full, dirty tongue tells the story so clearly that no one can make a mistake.—*Eclectic Medical Journal*

TYPICAL RANGE OF TEMPERATURE IN A CASE OF SMALL-POX MODIFIED BY VACCINATION. (Wunderlich)



It is not necessary to give the treatment of varioloid, as it would be but a repetition of that just given under the head of small-pox.

VARIOLA VACCINA—COW-POX.

Prior to the year 1721, no prophylaxis against small-pox was known in Europe, if we except the practice of *buying* the small-pox that prevailed at a very early period, both in Wales and Scotland, and which, in fact, was inoculation. The practice of inoculation, according to the statements of the Jesuits, was employed immemorially in China, and by the simplest method, that of passing a needle charged with the virus through the skin when it was pinched up by the finger.

The practice of inoculation was introduced into England in 1721, by Lady Mary Montague, who had witnessed its success in Turkey and had a son successfully inoculated. The practice met with much opposition, as all innovations upon established customs and prejudices do, and it was not until about the year 1750, that it received the cordial support of the medical profession. At first a stimulant and heating treatment was pursued, as was the case in small-pox, and the mortality was con-

siderable. Afterward a "refrigerant and reducing" plan was adopted, which was attended with much success, and from this time the practice came to be regarded with favor.

The vaccine disease or cow-pox, as a prophylactic against small-pox, was discovered about the year 1775, by Dr. Jenner, though he did not publish it until 1798. He noticed, while first studying medicine, that in the dairy districts of Gloucestershire, there was a current opinion that persons who had been affected with a peculiar eruption known as cow-pox, were protected against the contagion of small-pox, and might go among it and nurse persons affected with it, with perfect immunity. His mind was strongly impressed with these facts, and he commenced their investigation. It was not until 1796, however, that he became sufficiently convinced to attempt the propagation of the disease by inoculation, or as we say, by vaccination. His first case was entirely successful, the disease was transmitted, the pustules formed as described, and two months afterward, upon being inoculated with small-pox virus, it was found not to have the slightest influence.

Dr. Good, in his study of medicine, writing about the year 1822, gives the following account of the discovery, which, as a matter of historical interest, I quote: "The disease attracted attention in the county of Dorset, about forty or fifty years since, as a pustular eruption derived from infection chiefly, showing itself on the hands of milkers who had milked cows similarly disordered. It had been found to secure persons from the small-pox; and so extensive was the general opinion upon this subject, even at the time before us, that an inoculator who attempted to convey the small-pox to one who had been previously infected with the cow-pox, was treated with ridicule. A formal trial was made, however, and it was found that no small-pox ensued. About the same time, a farmer of sagacity, of the name of Nash, duly attending to these facts, had the courage to attempt artificial inoculation on himself; and the attempt is said to have succeeded completely. Similar facts and numerous examples of them were accordingly communicated to Sir George Baker, who, having engaged not long before in a most benevolent, though highly troublesome controversy respecting the cause of the endemical colic of Devonshire, was unwilling, notwithstanding his triumph, to tread again the thorny paths of provincial etiology. Gloucestershire,

however, another dairy county, had witnessed the same disease with similar consequences; and the same opinion generally prevailing in distant districts of both counties, afforded proof that the power ascribed to cow-pox was not wholly visionary.

"Dr. Jenner, then resident at Berkly, in Gloucestershire, pursued this hint with great judgment and unabated ardor. He was at first foiled by not distinguishing between the genuine cow-pox and an ineffective modification of it, or a spurious disease of nearly similar appearance, to which the same animal is subject, but which is no preservative against the small-pox; and found another difficulty in determining the period of time within which the vaccine virus maintains its prophylactic power. Having at last made himself master of the distinctive characters of the genuine vesicle, he ventured to publish the discovery in 1798, and to recommend innoculation with the virus of vaccinia as a substitute for variola."

The discovery was not received by acclamation, and its discoverer hailed as a benefactor of his race, as many persons would imagine; but on the contrary, it was met by ridicule and denunciation, and Dr. Jenner lost business and property, and narrowly escaped personal injury at the hands of a mob several times. The medical profession was as slow to admit the truth of the discovery, and as fast to cast obloquy on the discoverer, as the people; and it was many years before the doctrine and the man were admitted to be orthodox.

The disease of the cow is of rather rare occurrence, even in England, and hardly ever manifests itself except when cattle are gathered together in herds. We have no authentic account of it ever having prevailed out of England, and feel sure that it has not occurred in this country. The supposition that it is small-pox modified by passing through the cow is an error reproduced every few years, generally to make a sale for vaccine virus for some particular person. Dr. Jenner thought that he had traced the cause of the disease of the cow to the *grease* of horses. In regard to this Dr. Good remarks: "It was fortunate for Dr. Jenner, and the triumph of his discovery, that a minuter attention to the subject gave sufficient proof that there was no foundation for this opinion; and that whatever be the prophylactic power of the matter of the disease called grease, this disease is by no means the origin of the natural cow-pox, and has no connection with it.

VACCINATION.—Vaccination is not so easy an operation as thought by the majority of physicians. True, it is very simple, and there should be no reason for want of success, when good virus is used; yet an extended acquaintance with physicians of all schools, proves that from its imperfect or careless performance, it fails fully one-half the time.

The causes of failure are two-fold. In one case the skin is not so abraded as to bring the virus in contact with the true skin, where it may be absorbed. In the other the punctures are so deep as to cause a free flow of blood, and the virus is washed away.

A very simple and good method is, exposing the arm at the insertion of the deltoid, make the skin tense with one hand, and holding the lancet in the other at an acute angle with the arm, make many slight punctures over a part as large as a three cent piece, elevating the epidermis without much bleeding. Now take the virus, softened to the consistence of cream, and spread on the puncture, either letting it dry by exposure to the air, or covering it with adhesive plaster, before the sleeve is drawn down.

When there is a failure with the lancet used in this way, try the Chinese method. Charge a fine needle with the virus, raise a portion of the skin between the thumb and finger, and pass the needle through. An instrument has been devised for this purpose, which answers well, being speedy, certain, and not painful. It consists of a small cupped stylet, thrown by a spring; the virus being placed in the cup, and the spring drawn back, it is discharged into the skin with a single stroke.

Formation of the Vaccine Vesicle. — As a general rule, the puncture disappears the second day, but about the fourth or fifth day, a minute inflamed spot is seen. This gradually increases in size, and is swollen and hardened, and forms the base of the vesicle, which is seen first about the sixth day. At first it is spherical and filled with a transparent limpid fluid, but as it increases in size it becomes flattened, and when it attains maturity, the center is lower than the circumference.

It requires twelve or fifteen days from vaccination for the full development of the vesicle, which now presents the following appearance: It is regular in its outline, being usually oval, though sometimes circular in form. The vesicle is uniform in its elevation, usually about one-eighth of an inch, is

flattened, or even depressed at the center, and has a peculiar pearly-gray color. It stands upon an indurated and inflamed base, which forms a red areola of from half an inch to an inch outside of the vesicle.

About the twelfth day of the vesicle desiccation commences, and in four or five days is complete, though the scale or scab is not loosened for some time.

The scar left by vaccination is peculiar, yet is simulated by spurious vaccination. It remains white, the skin seeming to be deprived of its rete mucosum or colored layer, is depressed, the outlines being clean cut and well defined, and presents many little pits or depressions into the true skin.

Generally there is slight febrile reaction about the eighth day, when the vesicle has attained its maturity. Occasionally there is a marked chill, nausea and vomiting, and for a few hours the child is quite sick. Sometimes the irritation of the arm extends to the axillary glands, and these become enlarged and painful, and in some exceptional cases they have been known to suppurate.

Spurious Vaccination.—Any deviation from the course above described may be designated as *spurious*, and will not prove protective. *Regular in form, uniform and even border, flattened and of equal elevation, slight depression in the center, pearly-gray in color, uniform period of development about nine days, gradual and even desiccation, and slow detachment of the crust.* This is the vaccine eruption, and is so distinctive that I think it need not be mistaken.

Spurious vaccine matter is produced in several ways. It may be from decomposition of the vaccine lymph, by keeping, especially when moistened, and carried in the pocket, where the temperature will be high. I was acquainted with an example of this kind, in which a suppurative disease in some half dozen children was produced by such lymph. The most common cause, as I believe, is the use of second crusts from the vaccine vesicle. In many cases the vesicle having fully developed, the lymph commences to dessicate, but before completion the partially-formed scab is rubbed off, or is removed by some accident. But another one shortly forms, principally from pus secreted as the result of the irritation. Of course, if this should be used for vaccination, we would introduce pus instead of vaccine lymph.

If the general health was deteriorated in such person, and the blood was bad, and they were suffering from any cachetic disease, the result of such vaccination might be very unpleasant. For in some of these cases the pus possesses a peculiar septic property, that will cause extensive ulceration. I am satisfied that this was the case in the spurious vaccination (from the army) that was propagated through many sections of our country, and was regarded by some as syphilitic. In every case that I could trace, the soldier vaccinated had been in the hospital, with health broken down by the fatigues, privations, and sometimes dissipations of the army. Even when the vaccination was good and protective, which was not often the case, a suppurative inflammation followed at the site of the vaccine vesicle, and the scabs formed contained pus from bad blood.

I had a very marked example of such spurious vaccination in my own practice. A daughter of mine, in perfect health, was visiting her grandmother, and a case of small-pox having occurred in the village, people became excited, and almost the entire population was vaccinated. A young lady employed in the house, having a very perfect vaccine vesicle, the child was vaccinated with lymph from her arm, and it also took well, and developed regularly, and was as perfect as was possible. But, a couple of days before coming home, while playing with other children, she struck her arm, and the partly-formed scab was detached. But a new one forming, it looked well when I examined it, and as there could be no doubt of the health of both the parties, I concluded that I would use it in my practice in place of others. The winter course of lectures had just commenced, and, as usual, I vaccinated a majority of the students, using this virus. It did not produce the characteristic vaccine disease in a single instance, but quite a number had very sore arms. Four were so severely affected as to be confined to their rooms, and in one the local ulceration and infiltration of tissue was such that I feared the gentleman would lose his arm, if not his life; but having a good constitution, he recovered.

This unpleasant experience has caused me to be very careful in the use of vaccine, and, under no circumstances, will I employ a second scab, whether the first has been detached naturally or by some injury.

Can Syphilis be Transmitted by Vaccination?—I answer this question in the negative, to this extent—that the use of *vaccine lymph* will never convey the disease. To make the answer plainer, where the vaccine disease runs its regular course, and the vesicle formed presents all the characteristics of that described, the lymph from this is like pure gold, and is not influenced by any constitutional peculiarity, or any disease of the patient.

But if it varies from this standard, is irregular in form and elevation, and yellowish or pus-like in color, then disease may be transmitted, for it is not vaccine, but something else. Or if, running the normal course of the vaccine disease, there is afterward irritation and ulceration, pus being formed, this may be in such quantity in the scab, especially at its base, as to be a cause of disease. Or if the first scab is detached by injury, the second one, being formed principally of pus, the use of this for vaccination may transmit disease from one to another.

For many years the medical world, following the lead of Ricord, denied that secondary lesions were transmissible. Hence, syphilis could not be transmitted as above, unless there was a primary source at the point of vaccination, which could only occur by careless handling of a person having the primary disease upon the genitals. But it is now conclusively proven, and even Ricord admits that certain secondary lesions may be transmitted by inoculation, and among these are pustular eruptions. Thus we have an additional reason for care that the lymph we use is the normal and regular product of good vaccination. This we can always determine, while it would not be possible for us to learn or discover constitutional taints upon the part of many patients.

Non-Humanized Virus. Recently, vaccine virus has been grown for sale, by vaccinating calves with *vaccine virus*, and having it run its natural course. The abdomen of the calf may serve for twenty or thirty punctures, and as many good crusts are returned. It is good vaccine, and may be especially good if the first lymph was good and active.

Preservation of Vaccine Lymph.—Vaccine lymph undergoes spontaneous decomposition, or at least loses its specific properties in a period varying from two to eight weeks. Hence extra precautions are required to preserve it from season to

season. It is most convenient to vaccinate from the crust or scab, and this is most commonly used. For a short time it may be kept between two pieces of wax, or inclosed in this manner, additional security may be given by an envelop of tin-foil. But when we wish to keep it through the summer, we envelop the scab in tin-foil, pressing it down tightly, so as to render it water proof, and drop it into a bottle of glycerine. I do not know how long it might be preserved in this way, but I have kept it in an active condition for a year.

RUBEOLA—MEASLES.

Measles is a disease of childhood, though it may occur at any age, and becomes more dangerous as the person is advanced in years. Like the other eruptive fevers it is caused by a specific contagion developed during the progress of the disease, and may be propagated in the same way, by contact, or by breathing an atmosphere impregnated with the poison. Like the others, it also prevails in cycles of from five to seven years. In some seasons and localities it will appear in a very mild form, while in others it will be more or less malignant.

Symptoms.—From seven to fourteen days after exposure, the disease is ushered in with a chill, sometimes slight, at others amounting to a rigor. Occasionally for a day or two before this the child manifests catarrhal symptoms, has a slight cough, and may complain of pain in the head and back. Following the chill, febrile reaction comes up, but varies greatly in different cases. In some it is quite active, with a flushed, hot skin, frequent, full, hard pulse, and considerable irritability of the nervous system.

In all cases the catarrhal symptoms are so prominent and constant, as to be regarded as almost pathognomonic About the time of the chill, the child seems to have taken a severe cold, sneezes frequently, stuffing up of the nose, with increased secretion and discharge, redness and watering of the eyes, increased sensibility to light, hoarseness, and a troublesome dry bronchial cough.

The febrile reaction is usually remittent, and continues to increase gradually to the second, third, or fourth day, then declines after the eruption has fully made its appearance.

The eruption comes out first on the face, neck, and breast, then on the balance of the trunk, and finally upon the extremities. The single point of eruption, is much the color of a musquito bite, ovoid or irregular in form, especially irregular in its border, and the color is gradually shaded off to the color of the skin. The points of eruption generally coalesce, so as to present large patches or blotches. In very severe cases, the whole surface will be thus covered, so as to present but little of sound skin. The eruption is slightly elevated, and rough when the finger is passed over it, and pressure momentarily removes the color.

It requires from twenty-four to seventy-two hours for the full appearance of the eruption. It retains about the same degree of redness for one or two days, and then slowly declines, so that about the sixth to the ninth day from the chill, it has passed away.

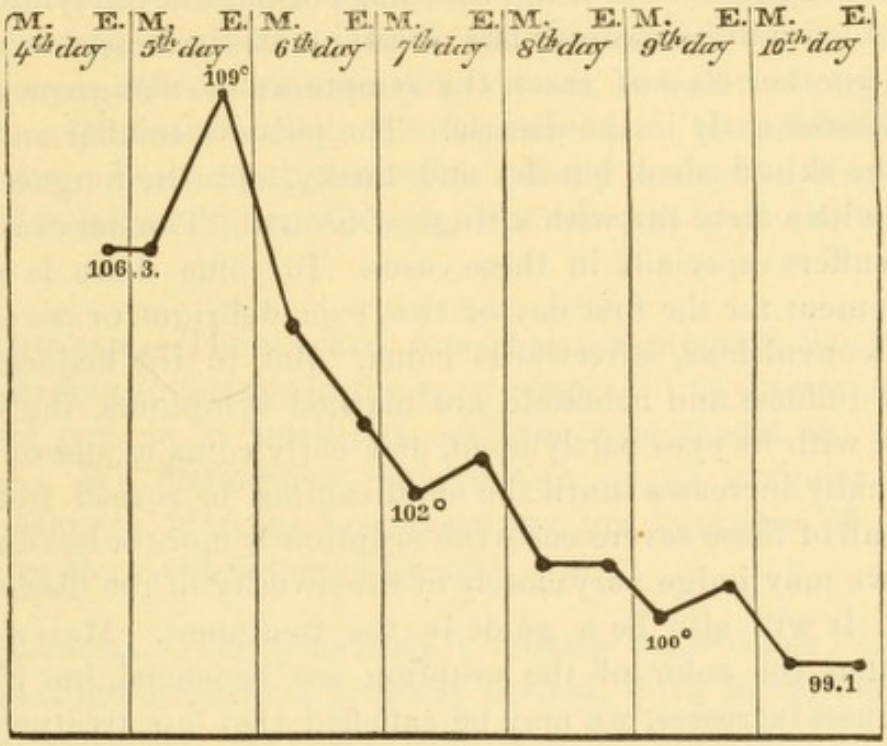
During the one, two or three days in which the eruption is coming upon the surface, the fever is higher than before, and sometimes the little patient is quite sick, even in the ordinary form of the disease. Then it declines, sometimes slowly, reappearing at times until the efflorescence has entirely passed away; at others, the little patient will be free from it in the course of a day.

With the appearance of the eruption the bronchial irritation and cough, are markedly increased in some cases, and become very troublesome. There is also more or less difficulty of breathing, which, sometimes, depends upon determination to, or congestion of the bronchial tubes, and at others, upon similar lesions of the parenchyma of the lungs. The part affected, and also the character of the lesion, may be determined by physical examination.

TEMPERATURE.—The diagram commences with the fourth day, and shows an active case. Up to this time the temperature has ranged from 103° in the morning, to 106° in the evening; a high range of temperature. We see further, that with the full appearance of the eruption on the fifth day, the skin is as if it were paralyzed, and secretion so arrested that the temperature runs up to 109°. But, rapidly regaining its tone after the first shock, the temperature quickly falls on the sixth day to 103°, and continues to descend until it reaches nearly the nor-

mal standard on the tenth day. For two weeks or more, it will show 99°; the excess of one degree being the impairment from the eruption, running until the new epithelium is fully formed.

THE FOLLOWING DIAGRAM REPRESENTS THE TYPICAL RANGE OF TEMPERATURE IN A CASE OF MEASLES.



Of course, in many cases, the temperature does not go above 103° or 104°, and the eruption appearing the second, third, or fourth day of the fever, the decline in temperature is earlier.

We find the disease assuming a malignant type in some seasons, and it will then present somewhat the temperature of natural small-pox, though with a higher range.

MALIGNANT RUBEOLA.—As named above, measles prevail with varying degrees of severity, from the very mild to the most malignant. We will also find that all the cases of a season resemble one another—when the disease is mild, all cases are mild—when it is severe, all cases are severe. Of the cause of this malignancy we know but little, further than that the contagious virus once attaining malignancy, propagates itself in the same way.

In one class of cases the eruption is tardy in its appearance. The fever running a pretty active course, with considerable bronchial disturbance, the third, fourth, fifth, or sixth day passes without its full appearance. The surface seems slightly swol-

len and flushed, and in some places the eruption is seen indistinct, as if struggling to make its appearance. In the children of my own family, the eruption made its appearance respectively in five, eight, and thirteen days from the chill.

Necessarily, in such cases the blood must become impaired by the long retention of the rubeolus poison, and the symptoms presented will be more or less of a typhoid character.

In another class of cases, the symptoms of malignancy are manifested early in the disease. The pulse is smaller and faster, the skin flushed, but dry and husky, and the tongue covered with a dirty fur, with a tinge of brown. The nervous system suffers especially in these cases. In some there is great excitement for the first day or two, even delirium, or occasionally, convulsions, afterwards coma. But in the majority of cases dullness and hebetude are marked symptoms, the child dozes with its eyes partly open, and early coma comes on and gradually increases until the child can not be roused from it.

In all of these severe cases the eruption is more or less dusky, and we may judge very closely of the severity of the disease by this. It will also be a guide in the treatment. Means that brighten the color of the eruption are beneficial, but if the duskiness increases, we may be satisfied that our treatment is productive of no benefit.

RETROCESSION.—There may be a retrocession of the eruption of measles, at any time after it has appeared. In the milder form of the disease, this increases the fever and the bronchial irritation, and, though unpleasant, is not dangerous. But in other cases we will find the nervous system suffering severely from the retrocession, and if it continues the blood also becomes impaired. In these cases dullness, stupor, and coma follow one another rapidly; the skin is dusky, temperature increased, and the tongue soon becomes brown, and sordes appear on the teeth. These symptoms are of a grave character, and unless prompt means are employed to bring the eruption again upon the surface, it may terminate fatally in a short time.

THE SEQUELÆ OF MEASLES.—An irritation of the bronchial tubes and larynx, with a harassing cough, is very frequently left from measles. In some cases this seems to be the result of cold taken during the progress of the disease, or more frequently, shortly after the patient has commenced getting about.

The cough is very harassing, causes restlessness and broken sleep, affects the appetite and digestion, and indeed all of the vital functions. Continuing, the bronchial irritation produces structural change, and after a time develops true phthisis.

A less common sequel of measles, is a subacute inflammation of the conjunctiva, principally confined to the lids, and finally terminating in granular lids, or ophthalmia tarsi.

In some other cases ottorrhœa results, and proves very stubborn. Deafness, partial or total, may also be produced by measles. The partial deafness is usually owing to disease of the Eustachian tubes, though it is sometimes of the middle ear.

DIAGNOSIS.—The marked catarrhal symptoms is the principal diagnostic feature in the early stage of this disease, as the severe pain is in small-pox, and the sore throat in scarlet fever. We distinguish the eruption by its irregular form, coalescing in blotches, not presenting the hardness of small-pox, or the vivid redness of scarlet fever.

PROGNOSIS.—The prognosis in measles is favorable; even in the malignant cases, if properly treated, there should be but a small mortality. It is true that in some epidemics in large cities, the disease is very severe and typhoid in its character, yet I think that the great mortality attending it is to be attributed to the medication as much as to the disease.

TREATMENT.—The treatment of measles is usually very simple. Bathe the patient's feet for half an hour in hot water, and give internally an infusion of equal parts of asclepias and lobelia herb. It need not be given to produce nausea, though to the extent of slight nausea, it favors the appearance of the eruption. After the eruption has made its appearance, I frequently continue the same remedy in small doses, to relieve the bronchial irritation and check the cough.

In place of this we may put the patient upon the use of Veratrum or Aconite in small doses, using the general sponge-bath at first, and the hot foot-bath to favor their action. This is not associated with warm teas and stimulants as so commonly used, but on the contrary, the patient is kept quiet in bed, not too warmly covered, and is allowed cold drinks.

Sedatives should be used with care in measles; if given in large doses, they may do great harm. It is safer to depend upon Lobelia and Asclepias. They may be used from our pocket cases, as follows: to a half glass of water add ten drops of Tincture of Lobelia and a teaspoonful of Tincture of Asclepias, and give in teaspoonful doses every hour.

In the severer forms of the disease the eruption is tardy in making its appearance, and in the meanwhile the fever runs high. When the pulse is small and *sharp*, the surface hot, and the patient complains of burning, with sharp pains in the forehead and orbits, the Rhus Tox. will be found a most excellent remedy. I usually prescribe it with Aconite, as—℞ Tinc. Rhus gtt. v, Tinc. Aconite gtt. v, Water ℥iv; a teaspoonful every hour.

In other cases the patient is dull, stupid, and inclined to sleep; there is evidently an oppressed circulation and tendency to congestion, and the eruption is tardy, or does not come out freely, or is somewhat dusky. In this case I would give—℞ Tinc. Belladonna gtt. v to gtt. x, Tinc. Aconite gtt. v, Water ℥iv; a teaspoonful every hour.

If the patient suffers from bronchial irritation or inflammation, or an inflammation of the lungs is threatened, we may use Bryonia with our sedative with most excellent results. The best local application in these cases is a cloth spread with lard, and sprinkled with comp. powder Lobelia and Capsicum.

In *malignant* rubeola we will have to give the case closer attention. The first evidence of the character of the disease in young children will be manifested in the stupor and tendency to coma. This will be met by the use of Belladonna with aconite, in the doses heretofore named. Though the case seems grave to trust to such small doses, yet a considerable experience has given me great confidence in Belladonna as a specific against congestion, especially of the nervous system.

With this I put the patient upon the use of Sulphite of Soda, to antagonize the septic condition of the blood; or in place of this, Chlorate of Potash may be given, and in some cases will answer a better purpose. When the mucous membranes present a dusky appearance, the tongue being dry, dilute Muriatic Acid should be given in place of these, as named when giving the treatment of continued fever.

When the eruption is tardy in making its appearance, the

patient being depressed, with stupor or coma, we may place great dependence upon the action of an emetic. Or when a retrocession of the eruption takes place, with the same symptoms, it is the most certain means of treatment. I prefer, in these cases, the acetous emetic, and give it so as to get a gradual influence upon the system, then carry it to thorough emesis.

This may be followed by the Aconite and Belladonna, and the Sulphite of Soda, as named above.

To arrest the harassing cough, that so frequently remains after the eruption has disappeared, I prefer either the infusion of Clover Hay, as before named, or the tincture of Drosera, ℥ss to water ℥iv.; a teaspoonful every four hours. These remedies will be found much better than the ordinary cough medicines in use.

SCARLATINA.

This is essentially a disease of childhood, and few persons will take it after the age of twenty. Unlike measles, it is also milder as the patient is older. It is propagated by specific contagion, either by inhaling the exhalations, or contact with the clothes of the patient. In some seasons it becomes epidemic; doubtless because the poison is so intense as to be propagated readily and at a considerable distance, and the condition of the atmosphere is favorable to the ready propagation of a zymotic disease.

Scarlatina has been divided into three forms: S. Simplex, S. Anginosa, and S. Maligna, differing in their intensity, severity of symptoms, and fatality. In some seasons the disease will present the character of the first exclusively; in others, it will be of the anginose form; and again, every case will be malignant.

SYMPTOMS.—From six to eight days elapse after exposure before the disease makes its appearance, and it is usually ushered in with a chill. In *scarlatina simplex* the chill is not very well marked, and lasts but a short time. The fever following presents the common symptoms: increased heat of skin, arrest of secretion, frequent pulse, loss of appetite, etc. In the course of from six to twenty-four hours, the eruption makes its appearance, in the shape of patches of efflorescence, upon

the face and neck, then extending to the body. If the eruption is minutely examined, it will be found to consist of an infinite number of small red points, the rose-colored ground being simply the base upon which they stand. Soreness of the throat, with slight difficulty of deglutition, appears at the commencement, though not usually severe, or accompanied with tumefaction. For nineteen to forty-eight hours after the appearance of the eruption the fever continues as before, but then rapidly abates, and in from three to five days the redness disappears, and is followed by branny desquamation of the cuticle.

In *scarlatina anginosa*, the chill is usually marked, there is nausea and vomiting, pain in the head and back, thirst, etc. The fever which follows is intense; the skin is dry, husky, and burning; the eyes dry and painful; the face congested and tumid; bowels constipated; urine is scanty, frequently voided, and high-colored; and marked irritability of the nervous system. Soreness of the throat, with difficult deglutition is complained of from the first, and on examination we find the fauces tumid and red, and the tonsils somewhat swollen. The nares are frequently implicated with the angina, and there is consequent stuffing of the nose, with difficult respiration, and consequent increased restlessness. The eruption sometimes makes its appearance during the latter part of the first day of fever, but more frequently not until the second or third day; about the third or fourth day it has reached its height. At the commencement there appears slight tumefaction of a portion of the surface, which gradually assumes a rose-red color, and the minute red points are developed. These patches increase in size until the greater portion of the surface is involved. During the eruption there is an expression of anxiety and suffering; the child is restless and uneasy, and sleeplessness, which resists the usual means of rest, is caused by the heat and stinging of the surface, and soreness of the throat.

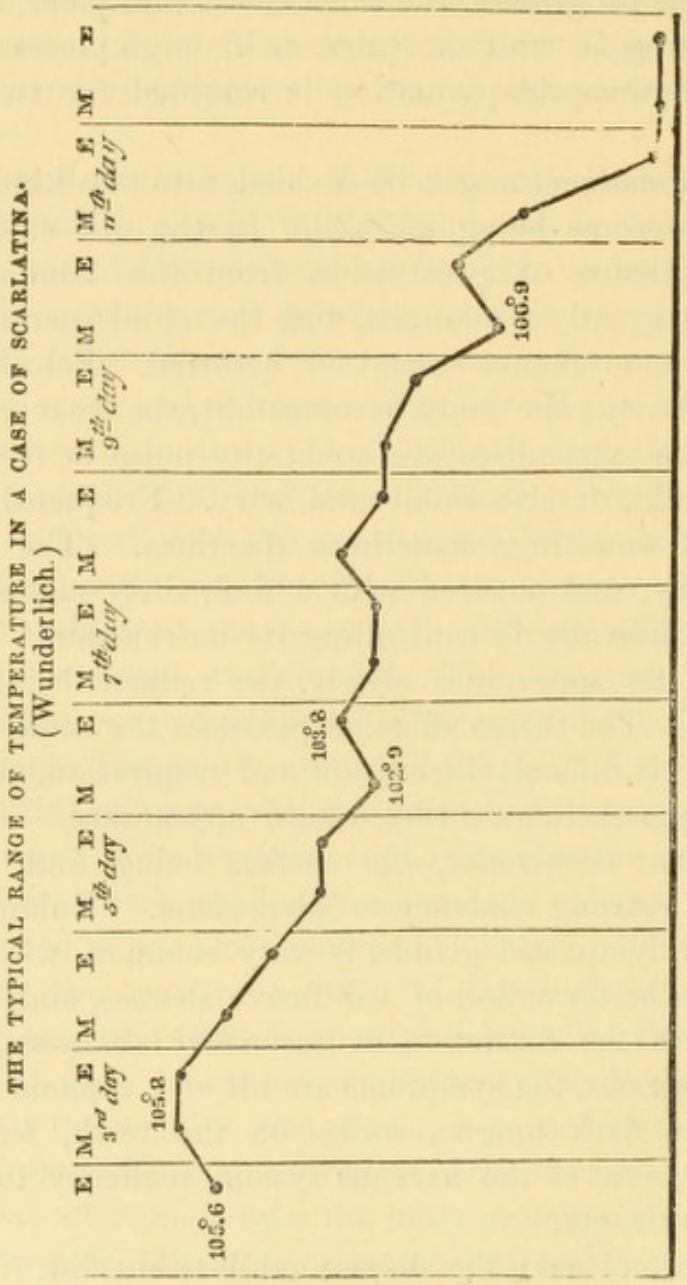
The throat affection is here the most prominent feature; the soreness increases, the mucous membrane and subjacent tissue are engorged and tumid, and the secretion from the mucous follicles and salivary glands so viscid and tenacious as to cause great distress. In some cases, ulceration commences by the fifth or sixth day of the disease, and the secretion is difficult of removal and exceedingly offensive; occasionally the ulceration

assumes a phagedenic form, and speedily terminates the life of the patient. Frequently enlargement of the cervical lymphatics commences from the third to the sixth day, and if not promptly treated, terminates in inflammation and suppuration. The fever, under appropriate treatment, commences to abate when the eruption has made its appearance, and disappears entirely by the fourth or sixth day, when desquamation commences. As this progresses, the surface becomes paler, the epidermis exfoliating in whitish scales, or in large pieces when it is thick; sometimes desquamation is retarded for two or three weeks.

Scarlatina maligna might be divided into two kinds, the distinctive symptoms being marked. In the one case there is marked evidence of prostration from the commencement. The chill is greatly prolonged, and the child seems dull and stupid, the countenance vacant or besotted. Febrile reaction comes up slowly; the body becomes hot, the heat being pungent, but the extremities are cold; the pulse is frequent, but soft and fluent, or else small and wiry. Frequently there is nausea and vomiting, sometimes diarrhœa. The tongue is broad, flabby, and covered with a foul, dirty mucus, and the patient has difficulty in controlling its movements. The eruption makes its appearance slowly, the redness being more or less dusky. The throat affection possesses the same characteristics; there is difficult deglutition and respiration, the mucous membrane presenting a dusky, tumid appearance. Ulceration is of frequent occurrence, the surface being foul, the edges ragged and a strong tendency to phagedena. Enlargement of the cervical lymphatic glands, is very common, with a strong tendency to the formation of a diffusive abscess, and, if the patient lives, to the formation of secondary abscesses. As the disease progresses, the symptoms are all of a typhoid character; there is the dark tongue, sordes on the teeth, feeble pulse, great oppression of the nervous system, tendency to diarrhœa, and tympanitis, etc.

In the second case, the disease exhibits but few, if any, premonitory symptoms. The child is attacked suddenly; the chill lasting but a quarter or half an hour, is not well marked, and is succeeded by the most intense febrile reaction. The skin is intensely hot, dry, and husky; the mouth parched and dry; the eyes injected, dry, brilliant, and painful. The patient is

either delirious or suffers such intense pain as to be almost unconscious of what passes around him. There is nausea and vomiting, the irritation being sometimes so intense that nothing can be retained on the stomach. In these cases the patient is frequently exhausted by the intense reaction, and dies before the appearance of the eruption, or during the time that nature is trying to throw it on the surface.



In the last two forms of the disease, and sometimes in the simple form, we observe a want of power upon the part of the system to determine the eruption to the surface. In such cases the skin appears tumid and dusky, there is tendency to coldness of the extremities, and marked oppression of the nervous

system. In such case, prompt measures must be taken to bring the eruption to the surface, or the patient will die. Again, we observe cases in which the eruption comes out, but, from some cause, it retrocedes; in this case, the same alarming symptoms manifest themselves. In other cases, the anginose affection is so severe, that it seems that the patient has not sufficient power to carry on respiration; sometimes the difficulty depends upon the secretion of a viscid, tenacious mucus.

TEMPERATURE.—The diagram presents the range of temperature in a case of medium severity—say of scarlatina anginosa. In scarlatina simplex the range of temperature will not be so high; in the severer cases of scarlatina anginosa, the temperature will sometimes go up to 108° or even 112°. Indeed the highest temperature we meet with in any disease, is in scarlet fever.

In scarlatina maligna, the temperature is not so high at any one time, but it is uniform at 104° to 105° for a number of days, frequently presenting no wave line or variation for a week or more. As we have before noticed, this is a dangerous feature in any disease.

DIAGNOSIS.—Scarlet fever is diagnosed from other diseases of the skin by the rose-colored efflorescence, upon which are the innumerable small red points. A marked characteristic of the disease is the fact that the redness is effaced by pressure, and does not return for some little time. Thus, by taking a pencil or the finger-nail we can write our name, which remains for a moment, and then gradually fades out.

PROGNOSIS.—In the simple and anginose form of the disease, the prognosis is favorable. In the malignant form, unless the treatment is prompt and effective, the prognosis is unfavorable. In all cases, if the eruption becomes dusky, if coma or typhomania ensue, or if the tongue becomes brown and foul, it is unfavorable.

SEQUELÆ.—Among the most frequent of the sequelæ of scarlet fever, are diseases of the kidneys, consisting of simple exhaustion and want of power to secrete, chronic inflammation and albuminuria. In the first we notice a marked dullness and hebetude, the appetite is poor, the bowels irregular, mark-

ed debility and tendency to cachectic diseases, the blood being greatly impaired. In the second, the pulse is hard and frequent; the dryness and huskiness of the skin continues; there is pain and soreness in the back and loins; the appetite is poor; the tongue dry, whitish, and fissured. In the third, dropsy makes its appearance when the child is supposed to be convalescing. Continued disease of the throat, with irritability and enlargement of the cervical lymphatic glands, is sometimes observed. Ozæna, with weakness and irritation of the eyes, and chronic disease of the ears, attended by purulent discharge and partial deafness, is not unfrequent.

TREATMENT.—In the treatment of this disease, it is well to have some well-defined line of action—to determine exactly how we can benefit our patient. We know by experience, that the higher the fever, and the longer it continues before the appearance of the eruption, the greater the danger, and that the case also becomes critical in proportion to the amount of eruption and arrest of secretion. Thus, in all cases, it is good practice to use such means as will control the primary fever, and favor the early appearance of the eruption. I have already mentioned, when speaking of small-pox, that keeping the secretions free during this period lessened the amount of eruption; this is the case here, hence depurants are advantageous.

In scarlatina simplex, we put the patient upon the use of tincture of aconite and belladonna—the usual doses repeated every hour. The alkaline bath is used sufficiently often to keep down the heat of the skin, and render it soft and pliable.

Generally we will find that these means relieve the irritation, the fever is lessened, and the eruption comes out early; and continuing these for two or three days, there is but little fever after the eruption has made its appearance.

The treatment for the throat will consist of the use of occasional inhalations of one part of vinegar to three of water, and a flannel wrung out of equal parts of vinegar and water and applied around the throat, with a dry flannel over it; this may be changed every half hour or hour, and as the disease subsides may be replaced with a dry flannel.

In scarlatina anginosa we adopt pretty much the same treatment. If the febrile reaction is high, we may add veratrum to our sedative mixture, or we may substitute it for the aconite.

I have also found it of advantage to give small portions of Potash, dissolved in considerable water, or in an infusion of some mild diuretic, as haircap moss. We do not expect immediate sedation, indeed it is not desirable, but as the remedies gradually influence the circulation, many of the unpleasant symptoms pass away.

In some cases there will be marked irritation of the nervous system, with determination of blood to the brain. In these we replace the Belladonna with Gelseminum, continuing it until these symptoms have disappeared.

Instead of the Acetate of Potash, we may use the Hydrochlorate of Ammonia, in doses of from one to three grains. This has been deemed a specific by some writers, and is undoubtedly a good remedy, especially in the more malignant forms.

The disease of the throat, which in this case is the most prominent feature, will demand much attention. The vinegar pack is the best external application here, as it was in the preceding case, and should be continuously employed. The inhalation also offers the best local application to the affected mucous surface. The simple inhalation of the vapor of water, or of water and vinegar, or an infusion of hops, of German chamomile or garden tansy, will give great relief; and repeated every two, three, or four hours, will be sufficient in many cases for the permanent cure.

When additional remedies are deemed necessary, they are best prepared in powder with gum arabic and sugar, and allowed to slowly dissolve upon the tongue. We thus use Chlorate of Potash, Hydrochlorate of Ammonia, Sulphite of Soda, Borax, Alum, etc. Used in this way, they relieve dryness of the throat, and the constant desire to swallow, which is so unpleasant.

If there is a marked tendency to enlargement of the lymphatic glands, I employ local applications of

℞ Tincture of Lobelia, ʒij.
Tincture of Aconite,
Tincture of Arnica, aa. fʒss.

Or take a strong infusion of the Lobelia herb and make a poultice with wheat bran.

In the first case of *scarlatina maligna* I employ the Aconite and Belladonna, in the usual doses, using stimulant sponge-baths and the hot mustard foot-bath, to aid in restoring an

equal and free circulation of blood. Associated with this, I would give the Hydrochlorate of Ammonia and Sulphite of Soda to obtain their local and also their general action. They may be prepared as follows:

℞ Hydrochlorate of Ammonia, gr. xx.
Gum Arabic, powdered.
White Sugar, aa. ʒij.

Triturate and divide in ten powders, and give one every two hours. The dose of the Sulphite of Soda will be about five grains, and of Chlorate of Potash two grains.

The throat receives the same treatment as in the preceding case, with the addition of an infusion of Baptisia Tinctoria as a gargle, if it can be used in that way; if not, by a spray instrument, or by inhalation of the vapor. I would also give it internally; a tea-spoonful every two or three hours. If the throat is tumid and dusky, or is ulcerated and sloughy, the Permanganate of Potash, grs. x. to Water, ʒiv., is an excellent application. The Sulphurous Acid, one part to six of water, is also very good when used with the spray apparatus.

In very severe cases, when there is marked torpor of the nervous system, with tendency to coma, I prefer to commence the treatment with an emetic. I use the Acetous Tincture of Lobelia and Sanguinaria, and give it so as to obtain a prompt and thorough action. It should relieve the depression of the nervous system, and produce a free and equal circulation of blood. If the eruption should not appear at the usual time, the symptoms becoming grave as named, I should also use the emetic, as I would if there was a retrocession of the eruption.

In this, as well as the other forms of scarlatina, I prefer fatty inunction to the use of the bath. It relieves the irritation of the skin, keeps it soft, and thus favors some secretion. Many physicians direct their patients rubbed with a *bacon rind*. A prominent Homœopath of my acquaintance places much dependence upon it. Instead of this I use lard alone in the first forms of the disease, and the Quinine inunction in the malignant form. I am satisfied that much benefit results from this use of Quinine; much more than from its internal administration.

In congestive diseases it has been recommended to sponge the surface with a solution of Carbonate of Ammonia, or Liquor Ammonia. Several cures are recorded of malignant scarlet ever, purpura hemorrhagica, and typhus fever, in which it was

employed with advantage. In using it, two ounces of strong Aqua Ammonia are added to two quarts of hot water, and applied freely. The Carbonate may be used in the same proportion in diseases of children.

I may also note that Tincture of Muriate of Iron has also been used in scarlet fever with advantage. It is given after the eruption has made its appearance; the combination with glycerine is the best form, and this may also be used as a gargle. It will also be of advantage during convalescence, and will tend to prevent dropsy and the other sequelæ.

The enlargement of the lymphatic glands is a source of much trouble in this form of the disease, appearing frequently when the patient is apparently convalescent. I prefer an application of the Permanganate of Potash, ℥j., to water, Oj., or sometimes double this strength. If it becomes evident that suppuration will occur, no benefit will follow from trying to keep it back, indeed we would thus endanger diffusive abscess. To hasten suppuration, we apply a poultice of a decoction of Cornus thickened with wheat bran or powdered Ulmus, or of one part of powdered Sanguinaria to three parts of Elm, or of equal parts of Hydrastis and Elm.

It is well to continue the use of the Permanganate with the poultices, as a preventive against diffusive abscess and purulent absorption. And should there be symptoms indicating this result, put the patient upon the use of Sulphite of Soda, and give Quinine and Iron, with stimulants, if needed, and a nutritious diet.

VARICELLA.

CHICKEN-POX.

Symptoms.—This is the mildest of the eruptive fevers, rarely, if ever, endangering life, and requiring but the simplest treatment. Like the other diseases of this class, it is propagated by specific contagion, the period of inoculation being from six to nine days. The disease is frequently associated with the epidemic prevalence of small-pox, and hence has been supposed by some to be a modification of that disease. It usually commences with a tolerably well-defined chill; fever succeeds, of a more or less marked character, and continues with remissions for twenty-four or forty-eight hours before the appearance of

the eruption. With its appearance the fever abates, and the little patient feels quite comfortable.

The eruption appears first as small, red, slightly elevated spots, usually of an oblong figure, with a flat and shiny surface; in a few hours a transparent vesicle is formed upon this, which, upon the second day, is filled with whitish lymph, and upon the third, have obtained their full size, about one fourth of an inch in diameter, straw colored. Many of them are ruptured by the fourth day; those which continue become puckered at their margins, and the lymph concreting, a brownish scab is formed, which is detached the seventh or eighth day. Many times there are successive crops of eruption, so that the disease may be observed in all its stages in the same individual, and the time is consequently prolonged.

DIAGNOSIS.—This affection is distinguished from small-pox, the only disease with which it could be confounded, by the formation of the vesicle, the first day of the eruption, no depression in the center, and its rapid maturity.

TREATMENT.—In this case, we direct a general sponge bath, followed by a hot foot bath, and the administration of some mild diaphoretic infusion, as of Asclepias, Eupatorium, Hedeoma, etc. If the bowels are costive, it is well enough to administer a mild cathartic; or, if the fever is high:

℞ Tincture of Aconite, gtt. v.
Tincture of Asclepias, gtt, xx.
Water, ʒ v. M.

Give a teaspoonful every hour to a child five or six years old.

To relieve the itching that is so intolerable in some cases:

℞ Glycerine,
Rose Water, aa. ʒv.
Subnitrate Bismuth, gr. xxx. M.

Use as a local application.

PAROTITIS.

MUMPS.

We have seen that the eruptive fevers are propagated by a specific contagion, generated during the progress of the disease; that they run a regular course; and that those having the disease are protected against subsequent attacks. To this group of diseases we may add two that have all these pecu-

liarities, but are not eruptive fevers: these are mumps and whooping-cough.

We may have a simple inflammation of the parotid glands, that has none of the characteristics named, but these cases are very rare. Mumps, on the contrary, is a very common disease, will prevail like measles, and large numbers of persons will be affected in a single season.

CAUSE.—We know nothing of the cause of mumps, further than it is generated during the progress of the disease, and is propagated by contact. Usually the period of incubation is six days, though as much as twelve days may elapse after exposure. All that seems to be necessary is that the person come into the room occupied by one suffering from mumps.

PATHOLOGY.—Whilst undoubtedly an inflammation, it does not seem to have the tendency to destroy parts that we observe in other inflammations. This may be due to the anatomical character of the part, but I am inclined rather to attribute it to the fact that there is not the same impairment of life and stasis of blood. In some very severe cases it may terminate in partial suppuration, though this is very rare.

SYMPTOMS.—Not unfrequently the patient will complain of feeling badly for a day or two before the development of the disease. The head aches, the back aches, the appetite is impaired, bowels constipated, and an unpleasant taste in the mouth. Usually there is a slight chill, followed by more or less febrile re-action, and with the development of the fever the swelling of the parotid glands is first noticed. In some cases the chill and fever will be so slightly marked that the patient does not call attention to it; whilst in others every symptom will be marked and severe, and it may be for a week the patient will have a high fever.

The patient complains of stiffness, and difficulty in moving the jaws, as in eating. Pretty soon the swelling is very noticeable, at first on one side, then on both. It may be confined to one side, and run its course without the other gland being at all affected, and it is said that the person has had "single mumps." In this case he will be liable to a second attack, the other gland being affected. There is not only the usual symptoms—heat, pain, redness, and swelling—all being

marked; but we have in addition a peculiar nasal voice, and considerable difficulty in deglutition. Any pungent substance taken into the mouth will cause pain, and it is usually suggested to the person to "try a pickle;" the sourness usually causes some pain in the parotids, and the person finds that he can hardly move his jaw or swallow. The disease runs its course in from four to eight days; the fever first declines, and then the swelling gradually passes away.

The most unpleasant feature of the disease is the tendency to *metastasis*, especially in the male to the testes, and more rarely in the female to the breasts and ovaries. These are usually severe cases from the first, and the person being imprudent exposes himself to cold. Frequently a chill ensues, the face becomes pallid, the swelling of the parotids diminishes, and the testicles commence to pain. They enlarge rapidly, become most exquisitely tender, and so drag on the cords that the sufferer is forced to support them. The pain is tensive and throbbing, except when they are touched or allowed to drag upon the cord, when it is exquisitely sharp and lancinating. Usually but one testicle is involved, but if both are attacked at once, the case will be extremely severe and painful. It is like orchitis from gonorrhœa, it has no regular course to run; it may subside in two or three days, or may continue a week or ten days, and in some cases may terminate in suppuration and destruction of the testicle. I have seen two cases in which the breasts were involved—in one the inflammatory action being very acute—and a single case of ovaritis in a prostitute from metastatis of mumps.

TREATMENT.—In the larger number of cases the treatment will be very simple, and yet very successful. The patient is put upon the proper sedative, usually Aconite, with Phytolacca, which seems to exert a special influence upon the disease. The prescription might be—℞ Tinc. Aconite gtt. v to gtt. x, Tinc. Phytolacca (green root) gtt. xx, Water ℥iv; a teaspoonful every hour.

The enlarged glands are simply covered with dry flannel, or flannel is wetted with tincture of Phytolacca and applied. If there is much pain and difficulty of mastication and swallowing, the vapor of hot water or an infusion of tansy may be inhaled. A good plan is to have the hot fluid in a large

vessel, and using a hot iron raise a sufficient amount of steam to bathe the patient's head and neck, a light shawl being thrown over the head and shoulders to retain the steam.

The severer cases will show special indications for remedies. Thus, the worst endemic of the disease that I have seen was met by the Rhus. The indications were the usual ones—sharp pulse, peculiar appearance of papillæ at tip of tongue, frontal pain, and peculiar bright glistening flush of skin over the affected glands.

Macrotys is the remedy where there is muscular pain, and especially when there seems danger of a metastasis. It is given in the usual dose with the sedative, or alternated with it.

We treat the orchitis as we would that from gonorrhœa. The patient is confined to the recumbent position, and the testicle supported by a proper bandage. If we make a local application, it will probably be equal parts of tinctures of Belladonna and Phytolacca. If the swelling is extreme, strapping the testicle to the abdomen will be the best means of present and permanent relief. Still I believe that we will rarely have any difficulty in managing these cases, if a right internal treatment is adopted.

PERTUSSIS.

WHOOPING COUGH.

Associated with the eruptive fevers and mumps we have the common affection, whooping cough, as one of the diseases that children, and sometimes adults are obliged to have. In the olden time it was regarded as a very severe affection, and even yet we find a considerable mortality from it. But with the modern specific remedies we find it quite amenable to treatment, as it can be rendered less severe, and its duration shortened.

Cause.—Like the eruptive fevers it is propagated by a specific contagion generated during the progress of the disease, and all that seems necessary is to come in contact with the person, or an atmosphere in which he has breathed. Of the character of the contagion we know nothing.

Pathology.—The disease is at first wholly a nervous lesion, and we have reason to believe that the contagion influences

the respiratory tract of the medulla oblongata. From this irritation of the nerve center we have a cough, as we would have if it had been an irritation of the peripheral pneumogastric nerves. As the cough goes on there are changes in the innervation and circulation of the lungs, and increased secretion of mucus or muco-pus will result from this. Thus what was at first essentially a nervous disease, having its origin in the medulla, becomes at last a severe affection of the respiratory apparatus.

SYMPTOMS.—A whooping cough usually comes on as a cold, though there does not seem to be the wrong of the circulation that we find in this. There is some irritation of the nose, increased secretion of tears, and it may be a little hoarseness. The cough, however, is a marked feature, and comes on in occasional paroxysms, but is not as yet recognized as whooping cough. In the course of a week or ten days it begins to show its spasmodic character distinctly, and is more markedly paroxysmal. By the third or fourth week we observe that the patient commences the cough with a full inspiration, and continues to cough until the air is wholly expelled from the chest. Even earlier than this the distinctive feature of the cough—the whoop—is developed. The larynx is always contracted in cough, and this becomes a very marked feature in whooping cough, so that when the air is expelled from the chest it closes spasmodically; the patient is therefore forced to draw in his breath through the contracted larynx, and as the result we have the shrill, whistling sound.

The disease continues to increase in severity up to the sixth week, when it is running its natural course; then it may continue unchanged for from two to four weeks, when it gradually subsides, and has disappeared by the twelfth week. It may be so mild as to give but little trouble, or it may be very severe. In some cases we find that the paroxysms of cough continue until the child is nearly exhausted, when the larynx is so contracted that it can hardly get its breath; or the cough may be so severe that blood will be forced from the mouth and nose, and even from the eyes, or so long continued that the child is nearly asphyxiated. In these severe cases the lungs suffer greatly; they may be congested, inflammation may be set up, or what is more common, a low grade of in-

flammation of bronchial mucous membrane is established, with profuse muco-purulent secretion.

DIAGNOSIS.—There can be little difficulty in recognizing this disease, by the paroxysmal character of the cough, without disease of the respiratory apparatus to account for it; the spasmodic character of the cough, commencing with a full inspiration and continuing until the air is wholly expelled from the chest; and the marked contractions of the larynx, especially during inspiration, giving the characteristic whoop.

PROGNOSIS.—I do not see why there should be any mortality in this disease, unless it would be a feeble child, unable to withstand any disease. The remedies now are so certain that we have almost a certainty of modifying its severity and shortening its duration.

TREATMENT.—I believe that there are specifics for whooping cough, and if we could say there is *one* specific we would have solved the problem. If we find two remedies which exert a direct influence upon the disease, but that they will not cure the same cases, what will we conclude? Necessarily that here are two whooping coughs, not one, each having something peculiar in itself, which is the indication for the remedy, and which the remedy meets. If we find three remedies which cure, but are not interchangeable, and neither will cure all cases, we conclude that there are *three* varieties of whooping cough.

Which are the remedies for whooping cough? Belladonna, Nitric Acid, Drosera, Trifolium Pratense, Bromide of Ammonium, and we might possibly add the Castanea Americana. The first two have had a reputation for the past seventy-five years, the third has been largely used by Homœopaths and Eclectics, the fourth has been used to some extent in England and in this country, and the fifth has received a decided recommendation during the past ten years. Neither one of these will favorably influence all cases, though when they are adapted to the disease the effect is most marked. Why not combine them all and give them together? Simply because the combination will not work. Let us see if we can find indications which point out the right remedy to us.

Belladonna. What is the common indication for Bella-

donna? Dullness, hebetude, disposition to sleep, impairment of the capillary circulation. Supposing then we find this patient suffering with whooping cough, dull, stupid, drowsy, or with impaired capillary circulation, what will we give? Belladonna of course. But if we do not find this condition, what? Why, we will *not* give Belladonna, of course.

Nitric Acid. What is the common (specific) indication for Nitric Acid? The violet color of tongue—not *solid* blue or purple—but a clear, transparent violet. If, then, we have this violet-colored tongue in our case of whooping cough, what will we give? Nitric Acid certainly. But if the tongue has not this violet color, what then? Why, not Nitric Acid certainly.

Drosera. If the cough shows the peculiar features of the cough of measles, we will give Drosera or an infusion of clover hay. Why? Because this cough which seems associated with this catarrhal irritation is cured by Drosera.

Bromide of Ammonium. What are the indications for Bromide of Ammonium? Spasmodic muscular contraction. If we find this convulsive movement during the paroxysm of cough, what will we give? Bromide of Ammonium surely. Why? Because it is the remedy for this spasmodic condition.

Then, I will be asked, "But supposing there is abundant secretion of mucus or muco-pus, will you not use a stimulant expectorant to check it? No. If Nitric Acid or either of the remedies named are indicated, it will check the secretion. But if there is dryness of the air passages, will it not be necessary to give a nauseant expectorant to establish secretion? No. If Drosera or Belladonna are the remedies, they will look after this matter, and give us right secretion of mucus.

Whooping cough may be taken as a representative disease. We do not treat the name "whooping cough," and when we have determined that our case is this disease, we have not reached the treatment. Each case must have a complete analysis, and we select the remedy according to a special expression of disease. It is so with every other disease; when we have a name for it, we are still far from the treatment. Now we must have a rigid analysis te determine what is to be done, and the proper remedies to do it.

Then we learn the fact that a special indication for a remedy being found, it is a remedy whenever and wherever we find

it, without reference to names of disease. Thus we say, that we have here five remedies for cough, whether it be the cough of laryngitis, bronchitis, pneumonia, tuberculosis, or pleurisy, or the many irritations of the respiratory apparatus that can not be thus classed. If we have the spasmodic cough, with dullness, hebetude and drowsiness, the cough medicine is Belladonna. If we have a cough with *violet* coloration of tongue, the cough remedy is Nitric Acid. If it is a cough of marked irritation, without febrile excitation (spasmodic), the cough remedy may be Drosera. If it is a cough that shows marked spinal irritation—convulsive muscular movement—the cough medicine is Bromide of Ammonium.

SPOTTED FEVER.

Spotted fever has prevailed in this country to a very considerable extent since 1862. In some localities it seemed endemic, while in others it was decidedly epidemic. Whether or not it is contagious has been in dispute; some contend that it is; others that it is not. My opinion is that spotted fever is, in ordinary cases, contagious, like typhoid fever. That when very malignant, with marked symptoms of putrescence, a fever poison is evolved which will affect persons who come in contact with it. There is, again, an epidemic form in which the contagion is as marked as in typhus fever.

Cause.—The cause of spotted fever is undoubtedly an animal poison, of very great activity, resembling in many respects the fever poison or malaria of *typhus*. We do not know definitely how it was produced in this country; yet in all previous epidemics it has been traced to crowding, bad ventilation, and especially to the decomposition of human excreta.

Pathology.—In its pathology this fever does not differ very materially, save in its malignancy and rapidity, from typhus or typhoid. The fever poison, whatever it may be, when once introduced into the blood, reproduces itself more or less rapidly, and finally causes the death of this fluid. In some cases the virulence is such, that within forty-eight, or even twenty-four hours, the blood is completely broken down, dies even before the vital functions have ceased.

Post-mortem examination reveals a breaking down of the blood in greater degree than in typhoid fever. There is also

extravasation of blood, and especially of its coloring material, so that parts which were congested during life are much discolored, as are the most dependent parts of the body, after death. Parts that have suffered from local congestion are also softened, sometimes so much so that they may be readily separated and broken with the handle of the scalpel.

The spleen is engorged with dark grumous and broken down blood, and is frequently enlarged. The liver is also dark-colored, swollen, and friable. The lungs seem to have suffered in like manner, are filled with blood, and the bronchial tubes contain a dark-colored, offensive mucus.

The surface of the body presents, in some cases, a remarkably spotted or ecchymosed condition. The discolorations are purplish or almost black, and most numerous on the dependent parts of the body. A close examination reveals that they are true ecchymoses or vibices.

SYMPTOMS.—The symptoms vary in different cases and in different localities, but may be divided into two prominent classes, as follows:

First. For two or three days the patient is listless, dull, and stupid, the face is flushed and dusky, eyes tumid, some pain in the head and back, loss of appetite, tongue dusky-red and coated with a dirty-white mucus, skin dry. This is the forming stage of the disease, and instead of lasting as long as named, will, in the severer cases, not be longer than twenty-four hours.

Following this there is a tolerably well-marked chill, lasting for two or three hours, and attended with great prostration. Febrile reaction follows, sometimes high, at others, not very well marked. In the one case the surface becomes intensely hot and flushed, the pulse 120 to 140 in the adult; sharp and hard, with great irritability and restlessness, though there is marked dullness of the intellectual functions. The thermometer marks a temperature in these cases of from 104 to 109 degrees. The urine is scanty and the bowels constipated. Frequently there is difficult respiration, some cough, and sibilant rales.

In from two to six days, an eruption appears upon the surface, very closely resembling measles, but more clearly defined. If the patient recovers, they commence fading out

by the end of the first twenty-four hours, but do not disappear entirely for some days. If the disease progresses unfavorably, they become dusky, and at last livid and associated with vibices. As their color becomes darker the nervous system of the patient becomes more oppressed; his mind wanders; and becoming livid, he sinks into a stupor from which he can not be roused, and which, in a short time, terminates in death.

In the second case there is but little re-action, the pulse running up to 90 or 100 in the adult, 110 to 120 in the child, and oppressed. There is tendency to coldness of the extremities, the skin being harsh and dry. The eruption appears the first, second or third day, and is a dusky-red, not readily effaced by pressure. There is a marked dullness and hebetude from the commencement, and frequently the patient is almost entirely unconscious a few hours after the appearance of the eruption. It runs a very rapid course in most instances, terminating fatally by the third to the sixth day. The eruption becomes dusky and livid, petechiæ appear; the tongue is dry and brown, sordes on the teeth, urine and fæces very offensive, coma or low muttering delirium, and gradually increasing difficulty of respiration.

Diagnosis.—The diagnosis is not always easily made at the commencement of the disease; yet this is not so important, because the symptoms show it to be a grave form of disease, of a congestive and malignant type. The extreme febrile reaction in the one case, associated as it is with dullness and hebetude of the intellectual functions, the dusky discoloration of the tongue and mucous membrane of the mouth, are characteristic symptoms.

In the other case, the great prostration, feeble reaction, dullness, and tendency to coma, the appearance of the dusky eruption, etc., show the nature of the disease.

Prognosis.—The disease varies in malignancy and mortality in different sections of country and at different times. So that, while under one class of circumstances, we should regard the prognosis as favorable in a large majority of cases, in another it would be unfavorable.

Much will depend upon the time when the patient is seen. If quite early in the progress of the disease, very severe cases

may be conducted to a favorable termination. While, if the disease is allowed to progress unchecked for a day or two, or is aggravated by injudicious medication, the more mild cases will be rendered unmanageable.

TREATMENT.—There are three plans of treatment that I think may be relied upon, and I will state them plainly, endeavoring to point out the special cases where a preference should be given to one over another. Taking the majority of cases, I think I should value them in about the order in which they are stated, relying upon the first plan especially, in very bad cases.

Make an infusion of Capsicum one part, Bayberry six parts, having it as strong as the patient can take it with comfort. Then give the Acetous Emetic Tincture in doses of from one to two teaspoonfuls every ten or fifteen minutes, with as much of the infusion as the patient will drink. We do not wish to produce immediate vomiting, but desire to get the general influence of Lobelia upon the system; so that if it is not well tolerated by the stomach, we lessen the dose, and apply a stimulant fomentation over the epigastrium, to aid its retention. Continuing it in this way for one hour or more, we notice that the depression of the fever is being replaced by the influence of the lobelia, and when this becomes marked, we carry it to free and thorough emesis.

In the meanwhile, the patient being placed in bed between blankets, hot bricks, wrapped in flannel wrung out of an infusion of Capsicum with Vinegar and Water, are placed at the feet, by each thigh, and by each side of the trunk, at such distance as to be in no danger of burning. Have the blanket loose over the body, but well-tucked down at the feet and around the neck, to prevent the escape of the vapor. After a free and vigorous circulation is established, the body may be rubbed dry with a flannel, and wrapped in a dry blanket.

In the second method of treatment we desire to obtain the stimulant influence of Lobelia or Ipecacuanha upon the circulation. I would order them in this form:

℞ Tincture of Rhus Tox., gtt. x.
Tincture of Lobelia, gtt. xx.
Water ℥iv. M.

This may be administered in teaspoonful doses, every half hour or hour. Occasionally it will produce slight nausea, which is not objectionable, providing that it does not

go so far as retching, or the rejection of the remedy. Ipecacuanha is given in doses of two to four grains every hour. always less than will produce vomiting, and is thus continued until reaction is well established. I like the action of the Lobelia the best, though the Ipecac. has been used with considerable success.

To aid these, an enema of an infusion of Bayberry, Lobelia and Capsicum, may be employed with good advantage. I am satisfied that I have seen the patient aroused by this means, so as to obtain the influence of other remedies by the stomach, when without this, it would have been impossible.

The third method of treatment is based upon the specific action of Belladonna to overcome congestion and stimulate the circulation. This has not been as thoroughly tested as we would wish, yet some very favorable reports of its action have been made. In California, the Atropia has been employed; we have always used the tincture of Belladonna. In this case I should order:

℞ Tincture of Belladonna, gtt. xx.
Tincture of Aconite, gtt. x.
Water ℥iv. M.

Of this, give a teaspoonful every half hour, until its influence in arousing the nervous system and overcoming the congestion is noticed; afterward every hour, until the circulation becomes free, and the dangerous symptoms have passed away.

In either case I should employ the Sulphite of Soda, in the usual doses, as soon as this first influence was established, and continue it until the pasty coat had entirely gone. But if at any time, the tongue becomes dry and dark, I would substitute the dilute Muriatic Acid with Baptisia.

Quinine may be used by inunction, early in the disease, and its use in this way continued to the complete establishment of convalescence. I do not think that its internal administration in the early stage of the disease, has been attended with any good effect, but on the contrary, has frequently increased the depression of the nervous system.

Tincture of Muriate of Iron, may be occasionally given alternately with the Sulphite of Soda, so as to obtain the good influence of both. In a majority of cases, it will be well to put the patient upon its use for some days after other remedies are suspended.

EPIDEMIC CEREBRO-SPINAL MENINGITIS.

Closely associated with spotted fever, and also, with diphtheria, is the disease known by the name of epidemic cerebro-spinal meningitis. These three bear a very close relationship, in that each presents very similar lesions of the nervous system, both during the progress of the disease, and in the sequelæ. In all three there is the evidence of the action of a blood poison, and the breaking down of the blood, and in each, death may be the result of the lesion of the nervous system, or of the lesion of the blood.

In this country, within the last ten years, the three diseases have prevailed in an epidemic form, one succeeding another, and in some cases seeming to merge into one another. We had first the epidemic diphtheria, next the epidemic spinal meningitis, and last the spotted fever.

PATHOLOGY.—The profession are not agreed as to the pathology of epidemic spinal meningitis, though it is now generally regarded as bearing a very close relation to typhus and typhoid fevers, epidemic dysentery, etc. I think there is no doubt but that it is produced by an animal poison, which, gaining entrance to the blood, gives rise to the phenomena of fever, and acting from the blood, specially affects the cerebro-spinal centers, producing the peculiar lesions that characterize this disease.

What this poison is, we are unable to say, neither are we able to account for its origin or propagation, in many cases. That the disease is contagious, in its severer forms, I am well satisfied, but this is also true of typhoid, especially of typhus, and, at times, of nearly all diseases which present that grouping of symptoms, called *typhoid*. In some instances, it has seemed as if there was an endemic influence causing the disease. In others, it has been distinctly epidemic, There is yet much mystery in regard to epidemic influences, and until the subject has been thoroughly studied, it will be useless to theorize upon it.

SYMPTOMS.—The cases of cerebro-spinal meningitis may be divided into two classes, the distinction being very marked. Occasionally, we will find it prevailing in both forms, at the

same time, in a locality; but more frequently it will maintain the one form in all the cases, at one place, or during one season. We may call these two classes, the *rapid* and the *slow* cerebro-spinal meningitis, as this expresses the greatest difference in the symptoms.

In the first, or *rapid* form of the disease, there is but a short period of incubation, rarely exceeding a day. The patient feels dull and prostrated, and if old enough to complain, it is of pains in the back, head, and limbs. The chill is usually well marked, the extremities being cold, the surface shrunken and pallid, and occasionally, severe rigors. It will be noticed that during the chill there is greater dullness of the mind and prostration than should attend an ordinary chill, and the patient seems to suffer severely.

In the course of one or two hours, the chill passes away and febrile reaction succeeds. The surface becomes flushed, and the temperature is increased. The pulse increases in frequency to 120 or 140 beats per minute. The face is flushed, the eyes injected and suffused, and the head is warmer than other portions of the body. The tongue and mucous membrane of the mouth are usually dusky, and the tongue coated with a yellowish-white pasty fur.

During the first few hours, sometimes for a day, the patient complains of pain in the back, and muscular pains in various parts of the body, and though there is great dullness of intellect, yet the patient is restless and uneasy. It will also be noticed that movement increases the suffering. The fixed position of the spine, head drawn backwards, or to one side, is characteristic.

By the second day, the patient has sunk into a stupor, from which it is difficult to arouse him. The surface is markedly flushed and dusky. The pulse very frequent and wiry, in the majority of cases, but in some is open but oppressed. Respiration is difficult, and the patient shows marked evidences of imperfect aeration of the blood. Occasionally, we notice evidence of partial paralysis early in the disease. At other times, convulsions come on early, or the disease is announced by them.

Thus it progresses rapidly to a fatal termination, the patient rarely lasting longer than four or five days, if not relieved, and sometimes it terminates fatally within forty-eight hours.

In the other form of the disease, the forming stage may last

from one day to a week, presenting the usual symptoms of dullness and hebetude, and arrested function. The chill is not very marked, though it may last for the greater part of a day, or be made up of slight chills and febrile reactions, of short duration.

Reaction comes up slowly, and is not fully established before the end of the first twenty-four hours. The temperature is increased, the pulse increased in frequency and hardness, the patient restless and fretful, complaining of pains in the back, head, limbs, or not unfrequently, a sensation of soreness as if bruised, without being able to locate it at any one point. The secretions are arrested; the skin becomes dry and harsh, the urine scanty and high colored, and the bowels constipated. The tongue, in some cases, is contracted and reddened, with a coat having a shade of brown; in others it is broad, pallid, and covered with a pasty white coat.

Usually, at first, the face is slightly flushed, the eyes bright, the pupils contracted, and the mind active. The patient is uneasy and restless, and does not sleep well. The marked contraction of some group of spinal muscles, curving the spine, is a striking feature.

Thus, day after day, the fever continues, sometimes presenting the symptoms of a remittent, at others of a continued fever. There is a gradual increase in its severity, and necessarily an increasing debility. Occasionally the fever will run very high about the sixth to the tenth day, and there will be marked delirium. Passing into the third week, the symptoms assume a typhoid condition, which gradually increases as time passes.

I do not think that at this time there is any distinctive symptoms, but the tenderness on pressure over the spine, and the pain when the patient is moved, except, possibly the greater excitement of the nervous system, which in this case replaces the dullness of typhoid. But sooner or later in the disease, this excitement is replaced by coma, which sometimes becomes a marked feature in fatal cases.

A peculiarity of this disease is, that having run the course I have described, for two, three, or four weeks, the symptoms gradually give way to treatment; the fever is arrested, secretion established, the patient sleeps well at night, takes food and seemingly digests it, but further than this there is no advance to recovery. There is no increase of the strength, indeed, no in

crease of flesh, and thus week after week will pass by without an appreciable change. After a time, however, it will be noticed that the patient is failing, and in two or three weeks he dies—but of what it is impossible to say. I have known of many cases that had a duration of three or four months, and an exceptional case that terminated fatally at the commencement of the eighth month, from the date of attack, there being no time during which the child was able to sit up.

DIAGNOSIS.—In the first form of the disease, the symptoms are of a very grave character from the commencement, and we are able to trace its relationship to spotted fever and the more malignant cases of diphtheria. The pains in the back and head, the severe muscular pains, are characteristic, and even in a child too young to describe its sufferings, its appearance will evidence it. The pain, or expression of suffering upon moving the body, is the evidence of spinal disease.

In the second class of cases, the disease comes on insidiously, and there may be but little, if anything, to arouse the suspicion of the practitioner that he has more than ordinary fever to treat. But after a while his attention is attracted to the pain when the patient is moved, and the greater irritability of the nervous system and restlessness than is common in ordinary fevers.

PROGNOSIS.—I do not regard the prognosis as unfavorable if the disease is seen in time, and a proper treatment is adopted. Taking the disease as it ordinarily prevails, it is probable that the mortality will vary from ten to twenty per cent. We must not forget the fact, that in some situations the cause of the disease is very intense, and it exhibits very great malignancy. Indeed, in some localities, many times death would have commenced before the physician was called to the patient.

TREATMENT.—In the first form of the disease, I would strongly advise that the treatment be commenced with a thorough emetic, of some preparation of Lobelia. In this case, as in spotted fever, we desire the general influence of Lobelia, as well as the act of emesis, or in other words, we want the act of emesis as the result of its general action. The aceteous emetic of our dispensatory, or the compound powder of Lobelia and Capsicum are good preparations for this purpose. Give in

doses just large enough to produce slight nausea, repeated every five or ten minutes, and when the system is brought fully under the influence of the remedy, which will be in one or two hours, then more freely until emesis results.

Following this I should prescribe—

℞ Tincture of Veratrum, gtt. xxx.
Tincture of Gelseminum, ʒij.
Water, ʒiv. M.

A teaspoonful every hour, if there was excitement of the nervous system. But if there was dullness, tendency to sleep with the eyes partly open—

℞ Tincture of Aconite, gtt. x
Tincture of Belladonna, gtt xx.
Water, ʒiv. M.

A teaspoonful every hour.

Associated with this, I should give Sulphite of Soda in twenty to thirty grain doses, repeated every two or three hours. Quinine by mouth is inadmissible, but it may be used by inunction with advantage. When there is a torpid circulation in the skin, I should associate it with a stimulant, as follows:

℞ Quinia Sulphas, ʒij.
Capsicum, ʒj to ʒij.
Adeps, ʒij. M.

This may be used with brisk friction, two or three times daily; and if the temperature of the extremities is lowered, apply dry heat.

In the second case, the treatment need not be so active. I am not certain, however, but that in many of these cases, we might obtain much advantage from the action of the emetic in the first two or three days. Indeed, I am satisfied that in two cases I arrested the disease by this means.

The treatment that I have pursued and recommended, has been the administration of Aconite and Ipecac. alternately. Of the first—

℞ Aconite, gtts. x.
Water, ʒiv. M.

A teaspoonful every hour. Of the second—

℞ Ipecac., grs. xx.
Sugar, ʒj. M

Triturate thoroughly, divide into twenty powders, and give one every half hour. In some cases half the dose of Ipecacuanha will be sufficient, as we do not wish prolonged nausea, and never retching and vomiting.

This is associated with the general sponge-bath, and with

the use of the hot foot-bath two or three times a day. If the bowels are torpid, they may be stimulated to action by a gentle laxative, or by an enema. If the secretion of urine is scanty and high colored, some diuretic infusion, as of Mentha Viridis, with small portions of sweet spirits of niter, may be given.

This treatment has been followed by a number of physicians of my acquaintance, with excellent success. Indeed, in some sections it seemed about the only plan that gave any success. I have had quite a number of letters commending it, of which this, from Dr. C. F. W. Hardt, of Illinois, may be taken as an example:

"In your summary for 1864, you have neglected naming the best, to my notion, of all, viz., Ipecacuanha and Aconite in spinal meningitis, or spotted fever. Since you recommended it, I have tried it in a number of cases with entire success, not losing a single case; that is, I have made the above the base, adding other agents as indicated."

There are two conditions of the nervous system that would cause me to change this method. In the one case, there is great irritation of the nervous system, with excitement and restlessness; in some cases it causes convulsions. With this condition there is a high grade of febrile action; here I give Veratrum and Gelseminum, as named in the first form. In the other case there is dullness of the intellect, disposition to sleep much, and with the eyes partly closed, and finally coma, gradually increasing until it produces death. In this case I should give Aconite with Belladonna, as heretofore named.

DIPHTHERIA.

Diphtheria was the first of these epidemics, making its appearance in some sections as early as 1855. From then, up to 1864, it prevailed in most parts of our country. It was thought by many to be a new disease, though a reference to authorities will show that several epidemics of the same have occurred before, and that it was well described, and received its name from French observers in the last century.

CAUSE.—The cause of diphtheria is undoubtedly a specific animal poison, though how generated or propagated we are

unable to tell. It prevails as an endemic or epidemic disease, and is rarely, if ever, found in isolated cases. I have no doubt that it becomes contagious, like other similar diseases, when it occurs in its most malignant form. There seems, sometimes, to be a very close relationship between diphtheria and scarlatina, and cases have been recorded where an eruption attended it. In this, as in some other diseases, the anomaly may have been a mistake in diagnosis, rather than a difference in the disease.

PATHOLOGY.—I have not changed my opinion of the pathology of diphtheria, first published in 1861, and upon which the treatment of the majority of our physicians has been based.

I quote it as then written, desiring to keep it on record as being the first announcement of a doctrine that is now generally admitted as correct:

"I hold diphtheria to be a general as well as a local disease, as is proven by the languor, listlessness, torpor of the nervous system, and derangement of the excretory organs, which, as a general rule, precede all local disease; all being symptoms of perversion of the blood, and almost invariably indicating the establishment of febrile reaction. We also find the evidence of the perversion of the blood in the heavily-coated tongue, which is always more or less discolored at the commencement of the disease, and always, in severe cases, exhibiting the brownish tinge, with more or less sordes upon the teeth as the disease progresses; in the diphtheritic deposit, which is markedly different from the exudations from highly-vitalized blood; in the secretions, the urine in severe cases being abundant, in all cases discolored, frothy, more or less clouded, with a peculiar, somewhat cadaverous odor — what the ancients would have termed *illy-concocted;* in the evacuations from the bowels, obtained by cathartics, which are frequently large, dark, and almost invariably fetid; and especially in the condition of the blood itself, when the disease has attained its maximum, which is dark, is not changed by exposure to air, forms a loose and easily broken-down coagulum, or does not coagulate at all.

"Post-mortem examination in those cases that have run a regular course, *i.e.*, that have not been terminated by an extension of the disease to the larynx, shows us the blood broken down to a considerable extent, more or less discoloration of

tissues from extravasation of the coloring matter, and softening of the tissues. These facts, it appears to me, prove conclusively the opinion given above."

There are some cases in which the disease seems almost wholly local, yet these are mild. Other cases will present the evidences of local disease first, and it will only be after some days that the serious character of the general lesion will be manifest.

SYMPTOMS—As above named, the symptoms of the forming stage are similiar to those of fevers and inflammations generally. For a day or two, sometimes for a week, the patient is listless and languid, does not play with the usual zest, is fretful at times, does not sleep well, especially at night, drinks frequently, and has a variable appetite.

Following this is a slight chill, lasting one or two hours; not unfrequently it is so light that it is not noticed by the parents. Following this, febrile reaction comes up slowly, and varies greatly in different cases. In some the fever is acute, and is a marked feature of the disease. In others the symptoms of fever are but slight—an accelerated and soft pulse, arrested secretion from the skin, kidneys, and bowels, and an increased temperature of the body, as marked by the thermometer, though it is not so perceptible to the hand.

As the disease progresses the fever assumes an asthenic or typhoid character, and there is evidenly a serious lesion of the blood. In a few cases the fever is high from the commencement, and continues to present sthenic symptoms during its entire progress.

The patient complains or shows signs of sore throat at the commencement of the disease. There is difficulty and pain in deglutition, the patient swallows frequently to moisten the throat, and there may be slight difficulty in breathing. On examination we find the mucous membrane of the fauces, tonsils and pharynx somewhat swollen, sometimes of a vivid red color, at others dusky or livid, and occasionally presenting a blanched appearance. On some of these parts we will notice the characteristic exudation—spots of an ashen-gray or white lymph upon the surface of the mucous membrane. They are usually small at first, not larger than a grain of wheat, or at farthest a three cent piece. They are usually grouped together two or three or more at a point, which is more swollen and

discolored than adjacent parts. There may be but one of these points of exudation, or several. As the disease progresses the swelling becomes more marked, and the points of exudation more numerous. The patches likewise increase in size, sometimes coalescing so as to uniformly cover quite a large surface.

For two or three days, in the majority of cases, the throat is dry, sometimes, indeed, during the entire progress of the disease. Then secretion is established from the mucous follicles, and some patches of exudation being removed, there is a free secretion from the denuded surface. The salivary glands also become more active, and the saliva is tenacious, thick, and ropy; and altogether the secretion is large, and requires frequent efforts at removal. Occasionally cases present themselves in which this seems to be the most unpleasant symptom.

In the latter stages of the disease, we may distinguish two classes of cases. In the first the dryness continues, and the parts become stiff and immobile, so that after a time deglutition becomes almost impossible, and respiration is rendered very difficult and labored. Extending upward to the posterior nares and nasal cavities, these are closed by the swelling; and descending to the inferior portion of the pharynx and epiglottis, these and associated parts are swollen and rendered incapable of motion, and the patient dies, partly from want of food and drink, and partly from imperfect aeration of the blood.

In the second class of cases, secretion commences about the second or the third day. By the fifth day it is quite free, some portions of the exudation are being detached, and the exposed surface secretes pus. In very severe cases this ulceration progresses in every direction, but is mostly superficial. The tissues seem to have lost their vitality, and the muscles their power of contraction, and they hang feeble and pendulous and infiltrated with serum, where the connective tissue is loose. Thus we have paralysis of the throat in the second as well as in the first case.

This also extends upwards to the nose, sometimes presenting the distinctive characteristics of diphtheria throughout. In some of these the discharge will be profuse, in others it is retarded, becomes dried, and thoroughly closes up the passages.

In other cases the disease extends downward and involves the pharynx. Here the patient presents all the symptoms of

croup—the whistling respiration, croupal cough, loss of voice, and gradually increasing difficulty of breathing. The occurrence of the laryngeal complication is sudden, and it runs a rapid course. Thus, if not relieved by remedies, it will usually terminate fatally within forty-eight hours.

DIAGNOSIS.—Diphtheria is readily diagnosed by the specific character of the sore throat. Where there is the peculiar ashen exudation upon the free surface of the mucous membrane, there is a case of diphtheria, no matter what the other symptoms may be. When there is no such exudation the disease is not diphtheria. I admit that in some exceptional cases the patches of exudation may be thrown off very early, and when the patient is first seen there will be simply an ulcerated sore throat, but in all there is the exudation at some period.

PROGNOSIS.—As is the case with all endemic and epidemic diseases, it prevails with different degrees of severity in different places and at different times. Thus one physician may meet with it in a form so malignant, and running its course so rapidly, that a majority of the cases will prove fatal. While another will see it in a mild form, and with but simple treatment, a large majority recover. Thus with some there has been a mortality of twenty to fifty per cent., with others of not more than two or three per cent., both pursuing the same treatment. Of course, in laryngeal complication the prognosis will be more doubtful.

TREATMENT.—Specific medication gives much better results in this disease than the old routine treatment, and I think it quite as easily learned. In these severe diseases the symptoms pointing to special remediesareusually very distinct, and we have already learned that where they are thus marked the action of remedies is very direct and certain. We will, therefore, at first, take up the single remedies that are especially useful.

Phytolacca. This remedy has attained quite a reputation in the treatment of diphtheria; but we will find cases in which it does no good, as well as those in which it will cure without other means. It may be a little difficult to determine the cases, but I think if the following symptoms are noticed, we may safely trust the Phytolacca. The tissues are full, the throat moist, the external lymphatics slightly enlarged, and

the mouth, as well as the throat, is sore. We use it with or or alternate it with Aconite, as—℞ Tincture Aconite gtt. v, Tinc. Phytolacca (fresh root) gtt. x to gtt. xx, Water ℥iv; a teaspoonful every hour.

Rhus. Rhus is a very certain remedy where the usual indications are marked. There is the frequent, small pulse, with *sharp* stroke, pain in the forehead and left orbit, peculiar appearance of the papillæ at tip of tongue, and more or less burning of throat, and sometimes of limited portions of the surface. Use it in combination with the Aconite, as—℞ Tr. Rhus (German) gtt. v, (American) gtt. x, Tinc. Aconite gtt. v, Water ℥iv; a teaspoonful every hour.

Baptisia. This is also a very certain remedy in diphtheria, where the usual indications for it are met with. The tissues will be full, deep colored, and the exudation and the secretions will have a tinge of brown. The pulse is frequent, full but oppressed, though sometimes weak and oppressed, and the surface will sometimes show a dusky discoloration. There will sometimes be a brownish, unpleasant discharge from the nose, and disagreeable crusts will form in the nose and upon the lips. I use it with the Aconite—℞ Tinct. Baptisia, gtt. x, Tinct. Aconite gtt. v, Water ℥iv; a teaspoonful every hour.

Fatty Inunction. Whilst in some cases the ordinary baths will answer well, in the majority we will find it best to use inunction, as in scariet fever In many cases we use quinine, ℥j with lard ℥ij; or we may make it stimulant by adding oil of cloves or oil of cinnamon ℥ss; or we may give it the form found useful in some cases of scarlet fever, as—℞ Creosote gtt. xxx, Common Salt ℥j, Lard ℥ij.

Sulphite of Soda may be given when the tongue is pallid and dirty and the throat moist and inclined to suppurate.

Chlorate of Potash is indicated by a peculiar cadaveric odor of the breath. Give in doses of grs. ij to v, and use as a gargle.

When the mucous membrane is dry, and continues so during the disease, I would recommend the dilute Muriatic Acid, associated with an infusion of Baptisia. The first is best used in the form heretofore named—℞ Dilute Muriatic Acid ℥ss, Simple Syrup ℥ij; a teaspoonful in water every two hours as a drink. The infusion of Baptisia is given in doses of a teaspoonful every hour.

As soon as the system comes under the influence of the seda-

tives, so that the tongue is moist, the pulse soft, the skin shows some evidence of secretion, we put the patient upon the use of small doses of Quinine. It may be prescribed with Hydrastine, in doses of about one grain of each, every three hours. The amount advantageous to the patient may be determined by its influence. If at any time the skin becomes dry, the pulse hard and increased in frequency, the mouth dry, and the nervous system irritated, the patient has too much. We know it is doing good, when the secretions improve, when the pulse becomes more full and free, and when it increases the strength.

The local treatment will be principally by the use of gargles, in persons old enough to gargle the throat; but when a child is too young to use remedies in this way, we will have to depend upon the local action of such as are swallowed, and upon the use of inhalations. The gargles in most common use, are solutions of Sulphite of Soda and Chlorate of Potash, and infusions of Baptisia, Hamamelis, and the diluted tincture of Phytolacca.

The new antiseptic, Salicylic Acid, has proven a most excellent remedy in diphtheria. It is employed in solution, in the following proportions:—℞ Salicylic Acid grs. x, Borax grs. x, Water ℥iv; use as a gargle, or with the spray apparatus.

℞ Tincture of Phytolacca (the recent root). ℥ij.
Water, ℥iv.

A teaspoonful every two hours.

With children the Chlorate of Potash exerts an excellent influence, when used in powder, as just named, and in connection with inhalations of the vapor of water and vinegar, will be the only means necessary in a majority of cases. The spray apparatus answers an excellent purpose in these cases, applying the remedy directly to the part affected. In very severe cases, where the parts are much debilitated and ulcerating, we use in this way Sulphurous Acid, and Permanganate of Potash. The first should be diluted with three parts of water, or even more if it seems to irritate the respiratory organs. It will be found a very valuable remedy in this case, and should not be overlooked. The Permanganate of Potash may be used in solution of the strength of from grs. x to xx of the salt, to water, ℥iv.

The external application that I prefer in these cases, is the cold pack of vinegar or vinegar and water. If the patient is feeble, and we fear the shock to the system, the cloths may be

used warm. In the occasional cases, in which there is associated an irritation of the lungs, with some cough, I recommended a cloth spread with lard, large enough to cover the throat and chest, sprinkled with the compound powder of Lobelia and Capsicum.

In those cases in which the disease extends to the nasal cavities, we would in the adult resort to the *hydrostatic* method of applying remedies. But in the child this is very difficult. Occasionally we may use a solution of common salt, half an ounce to the pint of water, with a pump syringe to free the nose. This is followed by the use of a saturated solution of Chlorate of Potash to arrest the disease. Of course such injections will have to be used with care. But the spray apparatus may be used here, and the remedies heretofore named for the throat may be applied to the nose with it.

Where the larynx becomes involved, and the symptoms of croup developed, the treatment must be prompt and thorough, if we expect to save life. To give temporary relief, I direct the inhalation of vinegar and water sufficiently often to give ease, using at the same time hot fomentations assiduously applied to the throat. When the case does not seem to progress rapidly, I place the patient upon the use of Aconite and Sulphite of Soda alone, and depend upon the means named for relief. If, however, it is progressing rapidly, I give the patient small doses of Aceteous Tincture of Lobelia and Sanguinaria, so as to keep up continuous slight nausea; and when the patient is brought fully under the influence of the remedies, it is carried to free emesis. The treatment is similar to that adopted in pseudo-membranous croup, and has proven much more successful than any other plan.

SCROFULA.

Scrofula, or king's evil, is one of the most common diseases the physician has to treat; and manifesting itself in so many different forms, its symptoms are protean, and its treatment varied and difficult. It is undoubtedly a disease of the blood, though the secretions and nervous system are markedly affected. Copeland remarks that "The blood in scrofula and tubercles has long been considered popularly, and with much

truth, to be of a poorer quality than in healthy constitutions." Simon states that the blood is deficient in solid constituents, especially in fibrin and in corpuscles. According to Dubois, the blood of scrofulous subjects coagulates slowly, the clot is small, soft, and diffluent; the serum is thin, and often of a reddish color. Under the microscope, some of the corpuscles appear devoid of color at the edges only, some entirely colorless. Their size is not materially changed, but they appear flattened, spherical, or cylindrical. Hence he infers that there is a deficiency of the salts in the blood of scrofulous persons. Mr. Phillips remarks that, in every case in which he examined the blood of scrofulous subjects, the coagulum was relatively small, the serum large, the clot unusually soft, almost diffluent; in a few instances only, it was tolerably firm. In most cases the proportion of globules was considerably under the healthy standard. The fibrin had not generally undergone much change. The causes of scrofula, whether those acting on the parent, or the individual himself at a very early age, or even at later periods, whether external or internal, whether hereditary, congenital, or acquired, have all a similar tendency, namely, directly to depress, or to exhaust organic, nervous or vital power; and thereby to impair vital resistance, to prevent the processes of repair consequent upon morbid vascular action, and to arrest the formative or organizing tendency of the exudations produced by this action. Not only is there a disposition to a dyscrasia—to a solution of vital cohesion, observable in parts near the seat of scrofulosis, but there is also an absence of the formative effort in the fluids exuded by morbid actions in scrofulous constitutions. The state of vital power or endowment in the several tissues or organs of scrofulous persons, appears insufficient, both for the healthy or sthenic actions or functions these parts should perform, and for the organization of the fluids or matters effused from their vessels. Hence the changes which the exuded matters undergo neither favor nor are followed by organization, even in its lowest grades; and most probably, the fluid itself is exuded from the capillaries of a kind and in a state which indisposes it to organization.

Scrofula is said to be hereditary, and so it is in this that the child inherits a defective vitality, which manifests itself in imperfect elaboration of the blood, and enfeebled vitality

of tissues and organs. Such persons may live for years without any manifestation of the disease, simply because there has been no cause acting to further depress vitality, or determine scrofulous deposit. Finally, however, from arrest of secretion or other cause, the system is depressed, and an irritation of some part being set up at the same time, we have full manifestation of the disease.

If we have correctly stated the pathology of the disease, what measures may be adopted to remove this predisposition? Some contend that it can not be removed, but we have evidence sufficient to show that it can be entirely eradicated. To accomplish this we resort principally to hygienic measures, such as will stimulate healthy digestion, secretion, and innervation. Remove the child to the country, let it have plenty of out-door exercise with accompanying light and sunshine, give it nutritious food and eschew condiments, pastry, and sweetmeats, and the entire constitution of the child will undergo a change.

Scrofula manifests itself in various ways; very frequently the deposit commences in the lymphatic glands; sometimes in the viscera, as of the lungs, liver, brain, etc.; again in the bones, in the muscles, in the skin; in fact, in all the tissues of the body. The determining cause of the deposit is, undoubtedly, an irritation of the part causing determination of blood.

SYMPTOMS.—The symptoms of a scrofulous constitution are not well marked, though it has been frequently described as if it were. It is true that it occurs most frequently in children of fair skin, blue eyes, light hair, and regular features; but it is so often met with in persons of dark skin, hair and eyes, irregular features, and rough development, that it is impossible to say by a child's appearance whether it is scrofulous or not. There is, however, in very many cases, such manifest imperfection in assimilation, circulation and nutrition, and feeble vitality, that we are enabled to recognize the scrofulous constitution. Usually, the previous history of the family will throw some light on the matter; but, as Prof. Powell has well demonstrated, the scrofulous constitution may be and is often developed in children by incompatibility of the parents.

Scrofula manifests itself when, from any cause, the vitality of the system is so depressed that the blood is not properly

elaborated, or the detritus of the system is not removed, either by an imperfection in the process of retrograde metamorphosis, or by failure of the excretory organs. The situation is determined in all cases by the existence of a local irritation or inflammation in, or adjacent to, the parts affected. Thus, we observe scrofulous deposit, and disease of the cervical lymphatic glands, from disease or irritation of the mouth or throat; involvement of the axillary glands, from disease of the arm or breast; of the inguinal glands, from disease of the lower extremities, or genital organs; of the mesenteric glands, from disease of the bowels; of the lungs, from irritation produced by cold; and in the muscles and bones from the same cause. It might be divided into two forms, as it occurs in the lymphatic glands, or as a deposit in the form of tubercles in the structure of a part; but no practical benefit would grow out of such distinction. As we have in other places described scrofulous or tubercular affections of the principal organs, we will confine ourselves here to a description of it as it affects the lymphatic glands.

In many cases the irritation giving rise to the development of scrofula is very manifest, and occasionally demands treatment, but in others it is very slight. The superficial lymphatic glands are then observed to become slightly enlarged and hard, so as to be very perceptible when the finger is passed over them. This occurs frequently in scrofulous children in the superficial cervical glands, without further development, and is considered by many as the best indication of a scrofulous constitution. When the disease is fully commenced, one or more of the glands continue to enlarge, a low form of inflammation sets in, and deposit takes place in the adjacent tissues, which become swollen and hard. Now the inflammation becomes more or less acute, the part is reddened, painful, hot, tender on pressure, and the swelling increases rapidly. Continuing in this way for a longer or shorter time, suppuration commences, and the deposit is gradually changed into pus, which in time makes its way to the surface, and is discharged. This occupies a variable period of time, sometimes passing through all its stages in eight or ten days, and at others occupying as many weeks. In some cases the inflammation is acute and the pain severe, but in others it progresses without much redness, heat, or pain.

The pus forms slowly in many cases, and there is but little tendency to its discharge, and in others weeks pass over, the part still continuing hard; and at last, when our patience is nearly exhausted, suppuration occurs rapidly. Sometimes the pus is well formed and healthy, and when discharged the part heals readily; but at others it is watery, of a greenish-brown color, or clear, with more or less flocculent material mixed with it. Occasionally the abscess exhibits no tendency to point, but the pus burrows in the tisues for a long time, unless it is opened. In other cases, when the pus is discharged the abscess does not heal, but continues to discharge a dirty, floculent pus; and if we examine it, we will find the walls ragged, and often a chain of lymphatic glands dissected out, and lying at the bottom.

The constitutional disturbance varies greatly. Sometimes there is quite brisk febrile action when inflammation first comes up, with loss of appetite, arrest of secretion, and much prostration. In these cases, suppuration is frequently marked with a chill or rigor, and occasionally attended with hectic fever and night sweats. In other cases, there is no constitutional disturbance further than loss of strength, and some derangement of secretion, languor, and a peculiar pallid appearance of the surface.

DIAGNOSIS.—Scrofulous enlargement is readily recognized from its situation, and from the attendant symptoms above named.

PROGNOSIS.—In very many cases the prognosis will be favorable, as the tendency to the disease is not so strong, but that it may be removed by appropriate treatment, and measures calculated to improve the general health. There is no doubt that, by proper care, the constitution of a child can be so entirely changed, in the course of time, that the tendency to this disease will be wholly removed. There are other cases, however, in which, though we may get the patients safely through the present attack, they will inevitably die, sooner or later, of this or some analogous affection.

TREATMENT.—When children are predisposed to scrofula, a judicious hygienic plan should be adopted to strengthen the constitution, by improving the functions of digestion, assimila

tion and nutrition. Such children are said to be tender, and hence they are kept in the house a considerable part of the time for fear of colds and sickness, and being weakly they are petted, and their appetites pampered; and not spending their time in play, as they should do, their minds are precociously developed at the expense of their bodies. Instead of this, such children should be accustomed to the open air. As with plants, the human species can not be robust and stout without fresh air and sunshine. As soon as they commence walking they should play in the open air, whenever the weather is suitable. In this way, the constitution is strengthened, and the liability to colds by alternations of temperature much reduced. Sleeping rooms should in all cases be large, well-ventilated, and exposed to the direct rays of the sun during some portions of the day. Up to the age of eight or ten years, the child's occupation should be out of doors, and whether it was play or work, it should be of such a character as to bring into action all the muscles of the body. Before this age the child should not be required to study, neither should it be sent to school, there being sufficient time after this for all laudable educational purposes. Regular meals of good, hearty food, with fruits in their season, with a sedulous avoidance of all cakes, sweetmeats, etc. are of the highest importance. An observance of these rules, the children being raised in the country, will almost invariably result in a complete change of constitution, and such increased vitality that not only is the predisposition to this disease removed, but the child becomes a vigorous, hearty man or woman, instead of dropping into a premature grave from phthisis or some kindred affection.

In the treatment of the disease, the indications are to, 1st, improve the quality of the blood, and raise it above the point at which scrofulous material is effused, and 2d, to promote the absorption and elimination of such material as may have been deposited. To accomplish these indications various means are resorted to, according to the condition of the patient. Alteratives are relied upon to a very great extent, and various agents of this class are employed. By some the compound syrup of Stillingia and Iodide of Potassium are considered the preferable agents, and are used to a very great extent. My experience has not been favorable to these remedies, and I have been compelled to select others. I now use the Rumex Crispus, Alnus

Serrulata, Scrophularia, Podophyllum, Corydalis, and some two or three other agents, sometimes singly, or two or three combined to suit the indications of the case. Acetate of Potash is my main dependence to promote absorption and elimination by the kidneys. I believe it to be as much more efficient than Iodide of Potassium, as this is over Epsom Salts; at the same time employing the bitter tonics, Iron, the Hypophosphites, and Cod Liver Oil.

Very much depends upon getting proper action of the three principal emunctories—the skin, kidneys, and bowels. Great care is necessary, however, in the severer cases, not to over stimulate and exhaust these organs. To restore the secretion of the skin, I employ—if it is dry and husky—oleaginous frictions, followed by thorough washing with castile soap and water; if soft, relaxed, and flabby, I use the bitter tonic baths; if there is deficient capillary circulation, with coldness of the extremities, a sponge bath of dilute Tincture of Capsicum.

As a local application to promote resolution, I have used equal parts of Tinctures of Belladonna and Stramonium, and Glycerine, or if there is much fever, an equal part of Tincture of Aconite. In other cases, a wash of equal parts of Tincture of Muriate of Iron and Glycerine may be used, or the part may be painted with the Iron, and then followed by the lotion named. In some cases we obtain good results from the use of the Mayer's ointment or the black salve; finely pulverized Indian Turnip, made into a poultice, is an excellent application. If there is much heat and redness, we may use fomentations of Stramonium leaves, or a poultice of a decoction of Cornus and wheat bran. If it is seen that resolution can not be effected, we will employ poultices to facilitate suppuration; and if pus has been formed to any extent, instead of permitting it to burrow, we will immediately open the abscess. The poultice may be continued for a few days longer, until the inflammation has passed off, when it may be dressed with Mayer's ointment, or other stimulant application, until it heals. If it does not discharge well, and looks ragged, it will be best to use a solution of Sesquicarbonate of Potash until suppuration becomes free. And in those cases in which the healing process is slow, and the discharge thin and watery, it may also be employed with advantage.

In some cases the healing process progresses until the abscess is nearly closed, but a red, ugly cicatrix is left, from which there is more or less oozing; or if it closes, it breaks out frequently, and, after running for a few days, again closes, with a thin, bluish cicatrix. These cases are remarkably tedious, and are very difficult to cure. I have treated them by employing the zinc paste to entirely destroy the morbid cicatrix, and then healing with some mild, stimulating ointment; or, instead of this, we may sometimes dissect the cicatrix out, and draw the parts together with adhesive straps. In other cases, we will find that a decoction of equal parts of Cornus, Rumex, and Alnus, continually applied, and taken internally, will in time overcome the disease.

DYSCRASIAS.

The definition of *dyscrasia* by Dunglison, "*a bad habit of body*," would answer our purpose very well as describing a *bad* blood and an impairment of nutrition, and from this enfeebled tissues. The older pathologists used the term to express "an ill habit or state of the humors," *i. e.*, of the fluids of the body.

It is used to describe a condition of life, and not a special form of diseased action, though whatever form this may assume, it possesses the characteristics of the entire group. In scrofula the impairment of the blood manifests itself in the deposit of imperfect albumen, most frequently in the neighborhood of lymphatic glands. In this the nutritive fluids are impaired, and the tissues formed from them are also imperfect. In addition to this, the excretory organs being insufficient for its removal, we have it thrown off in the skin, producing skin diseases; in cellular tissue, producing low grades of inflammation, and in other tissues giving rise to degenerations and inflammatory affections.

CAUSES.—The causes giving rise to this condition are numerous; indeed, whatever depresses the vital powers, either an impairment of digestion and assimilation, or retrograde metamorphosis and excretion, will produce it. Hereditary feebleness of vitality or formative power is very frequently the cause. Add to this imperfect food, deficient ventilation, impure air, want of sunshine and exercise, and we have the common causes

We have also to take into consideration the fact that bad blood, or bad tissue manifests a constant tendency to reproduce itself—indeed, that whenever a fluid or tissue has had its vitality thus impaired, it perpetuates the impairment; also, that every point where the disease manifests itself becomes, to a greater or less extent, a depot of supply or depravation. Thus the fluids are being constantly impaired by materials taken into them from these sources.

In some of these cases, the lymphatics suffer more than other parts, and the lymph being impaired, the blood which is formed from it is impaired to the same extent.

SYMPTOMS.—The evidence of bad blood and bad tissue may be found in the general impairment of function, as well as in the many local diseases arising from it. Nutrition being imperfect, the tissues are soft, and have lost their tone and elasticity; the circulation is feeble and unequal; the appetite is variable, and the digestive act imperfect; the tongue being pale, broad, and frequently covered with a pasty white coat.

There is a want of activity of the excretory organs. The skin is dry, rough, and harsh, or soft and flabby, in neither case performing its function well. The urine is changed, containing the triple phosphates or urates, or at times of low specific gravity and deficient in urea; while the bowels are irregular, neither acting well as a digestive or an excretory apparatus.

The local diseases vary in character, but they are alike in giving rise to deterioration of structure, low grades of inflammation, a poor purulent product, and deficient power of repair.

TREATMENT.—The indications for treatment are very plain in these cases. We have to get rid of the imperfect blood and imperfect tissues, and replace them with good blood and good tissue. We get rid of the bad material by increasing the process of retrograde metamorphosis, and stimulating the excretory organs—the skin, the kidneys, and the bowels. We obtain better blood and better tissue by the use of means that improve the appetite and digestion, and that restore to the blood the materials in which it is deficient, and which stimulate the nutritive processes.

The selection of remedies to accomplish these objects is not always easy. The processes that we desire to act upon are vital processes, and remedies that increase their activity, if

properly used, may depress them, or even arrest them, if used without care.

Excretion, or the removal of the bad blood or tissue by the skin, kidneys, and bowels, occupies the first place. Usually we will have no trouble in obtaining this influence, if we are willing to give time enough, and employ simple agents in small doses. I prefer the vegetable alteratives in infusion, singly, or two or three in combination. The Alnus, Rumex, and Scrofularia are favorites of mine, and I think they will give satisfaction.

The skin is reached by the use of baths and frictions. If dry and harsh I prefer fatty inunction, with brisk friction, occasionally using a small portion of Quinine in this way, if there seems need for its tonic influence upon the nervous system. If relaxed and flabby, stimulant, tonic, or astringent baths are the best.

If the bowels are inactive, minute doses of Podophyllin thoroughly triturated with sugar, answers a very good purpose, but the doses should be so small as not to produce purgation.

The kidneys are called into action by the use of Acetate of Potash, better than by other remedies, the solids of the urine being especially increased. I have regarded this as our most powerful alterative with children, being much better than the Iodides in such common use.

While employing these means, the patient is put upon the use of Iron, the Hypophosphites, Cod Oil, and the bitter tonics. In the majority of cases the Tincture of Muriate of Iron with Glycerine, as heretofore named, will answer the purpose; or if a stomachic is needed, a small portion of tincture of Nux Vomica or Solution of Strychnine may be added.

Of course a nutritious diet, carefully adapted to the condition of the patient is indispensable, and the selection of this and its preparation, will require the advice of the physician. Add to this good ventilation of, and sunlight in, the sleeping apartments, and out-door exercise, attention being paid to warmth and cleanliness, and we have an excellent treatment.

POISONOUS BITES AND STINGS.—DISSECTING WOUNDS.

Occasionally a physician is called to treat a person who has been bitten by a poisonous serpent; but more frequently one who is suffering the effects of the sting of the bee, wasp, or others of like species.

The history of the accident in these cases is usually plain, and their symptoms very marked; so that there is little danger of mistaking the character of the injury.

SYMPTOMS.—The symptoms from the bite of a poisonous serpent are manifest in a short time. The patient is prostrated, the countenance pale and listless, body bedewed with a cold perspiration, the pulse small, rapid, and fluttering, with drowsiness and disinclination to speak or answer questions.

The part bitten usually swells rapidly, and becomes bluish discolored. In some cases the swelling extends to adjoining parts, and finally the whole body is more or less swollen and sometimes discolored.

All the symptoms are those of prostration, and we may regard the poison as a depressant, having a somewhat similar action to hydrocyanic acid, and at the same time a blood-poison, setting up a process of decomposition.

The poison of the sting of the bee, wasp, hornet, and others of like species, is somewhat similar in kind, though in much less degree. Usually we will find the disturbance principally local, except the irritation of the nervous system from the extreme pain, which sometimes goes so far as to produce convulsions. The part is much swollen, pale at the part stung, but with a red areola, and is exquisitely painful.

In some persons, extremely susceptible to the influence of the poison, we will have marked prostration from a single sting. Usually, however, the constitutional symptoms are seen when the person has been stung in many places. In these cases the pulse is small and feeble, the extremities cold, the face pallid, a sense of weight and oppression in the præcordia, difficulty of breathing, and sense of general prostration. In one case that came to my knowledge the patient was unconscious for some hours, and seemingly lifeless for a time.

As a general rule these symptoms pass off in the course of twenty-four hours.

TREATMENT.—The treatment for the bite of a serpent will be of a stimulant character. Let the wound be freely incised, and cupped, or drawn by the mouth, and afterward a strong solution of ammonia applied. Place the patient in bed, cover warmly, and apply dry heat freely.

Give internally the aromatic spirit of ammonia with tincture of assafœtida, in full doses, repeated frequently, with as much strong coffee as the patient can drink.

The common treatment in the South-west is to give whisky freely, to the extent of a pint or more in a short time, for an adult; but I think it doubtful whether this is as good as the plan proposed.

In the case of a *sting* I have slices of *raw onion* applied to the part, and changed frequently. It is very certain and speedy in its action, relieving the pain, and dispersing the swelling, usually in the course of half an hour. If there are a number of stings it should be applied to every one of them, and bound on firmly.

In case the general symptoms are developed, I should recommend the treatment given for the bite of a serpent. If convulsions ensue, chloroform will probably prove the best remedy.

The treatment for dissecting wounds is to some extent like that for an asthenic fever, or an erysipelas. I prefer the internal administration of Sulphite of Soda in doses of grs. x. every two hours, using Permanganate of Potash as a local application. The strength of the solution will be ℥ij. to water Oj., used as a constant wet dressing.

INFLAMMATION.

In order to make a more thorough study of structural disease, and to save continuous repetition, it will be well for us to study the inflammatory process, both in its pathology and its treatment. Inflammation is a very definite pathological process, the causes acting in a certain manner, and the lesions following in regular succession, with pronounced symptoms. I do not believe one is in a condition to think correctly of it, or to treat it, unless he can picture to himself the minute anatomy of parts, especially of the capillary circulation, and the distribution of the sympathetic nervous system, by or through which the circulation of blood is controlled.

Dr. C. J. B. Williams defines inflammation to be "an excess of blood in a part, with the movement of that blood partly increased and partly diminished." You may say that this is a very meager and imperfect description of inflammation, yet we will find it a stepping-stone to a right knowledge of the process.

"*An excess of blood in a part.*" Where is the blood? in arteries that can be seen, in veins that can be seen, outside of the blood-vessels? Let us see about this. We turn to our anatomy, and read: "The arteries do not terminate directly in veins, but in an intermediate system of vessels, which, from their minute size (about the 1-3000 of an inch in diameter), are termed *capillaries*. The capillaries constitute a microscopic net-work, which is distributed through every part of the body, so as to render it impossible to introduce the smallest needle-point beneath the skin without wounding several of these fine vessels. It is through the medium of the capillaries that all the phenomena of nutrition and secretion are performed. They are remarkable for their uniformity of diameter, and for the constant divisions and communications which take place between them, without any alteration of size." So minutely are they distributed, that we are accustomed to say that the interspaces between capillaries is not greater in size than the capillary. In other words, a tissue is an intricate mesh of these minute blood-vessels. These are the vessels engaged in the inflammatory process, and it is in them that we have the excess of blood.

"*The movement of the blood is partly increased and partly diminished.*" Let us see if we can understand this. When the circulation is increased the word *active* would be expressive, and convey a correct idea. In an active circulation the blood is running too fast, and we associate with this excitation of the part. The word *feeble* or *enfeebled* would express the condition of the circulation when it is diminished; that is, the blood is running too slow, its movement is sluggish, or it may be that its motion has stopped. This is a correct picture of the circulation in the process of inflammation, and, as we will see after a while, forms a correct basis for treatment.

Under the Microscope. It is possible to see the process of inflammation, and note every step. If the web of a frog's foot, or the mesentery of a rabbit, is placed in the field of a microscope, we may see a single layer of capillaries connecting a small arterial twig which brings the blood, with a small venous radicle. Now we irritate the part with dilute acetic acid, and at once we see an increased action in the arterial twig, and the red corpuscles hurrying forward into the capillaries. These dilate and more blood enters them, but it is moving forward with increased rapidity. There is evidently an excitation of the part. This we call *determination of blood*, and if we watch the part for a time we will see the excitation of the arteries gradually fade away, the current of blood is less rapid, the capillaries return to their normal size, and the circulation through them has returned to its normal standard. In this case we have simply produced *irritation* of the part. Now we use a stronger acid, and it not only is a cause of irritation, but it impairs the life of the part. Again we find the blood hurrying forward, the capillaries are filled with blood; but whilst in some it is circulating rapidly, in others we find it becoming sluggish, until at last it has nearly or entirely stopped.

Now let us look at it closely, and think of it closely. When the part is simply irritated we have the increased circulation; when the life is impaired we have the sluggish circulation and stasis. On the outside the vessels seem to retain their strength, and they are excited; on the inside we see them dilated, tortuous, saculated—evidently their life has been impaired, and they have lost their natural stimulus to that extent that from physical change the blood can not pass through them freely.

Exudation. From these enfeebled capillaries we have an exudation into the intercapillary spaces, and as we look at the vessels it strikes us that there is such impairment of their walls that they can not retain their contents. The exudation is due to the impairment of life, and its quality will, to some extent, depend upon the extent of this. If not very marked, the exudation will be euplastic—of "coagulable lymph;" if it is marked, it may be of the liquor sanguinis, or even of the entire blood.

THE CAUSE OF INFLAMMATION.—Any thing acting upon a part which will produce irritation, at the same time impairing the life, is a possible cause of inflammation, and it may be safely asserted that all causes of inflammation have this double action. If the cause is simply one of irritation (excitation), we will have determination of blood, and an active condition of the part. If the cause was wholly depressant, it would give us a sluggish circulation—*congestion;* or, if sufficient, death of the part.

An irritation calling a large amount of blood to the part may of itself impair life, and we will frequently find cases in which the great excitement of the first stage is a cause of great impairment of the circulation in the second stage, and of death by suppuration or mortification.

Or the first cause may be wholly depressing, as seems to be the case in ordinary colds, causing congestion of internal organs. The human body sems to possess a reserve force to meet such casualties, and this being aroused and concentrated in the part, increased innervation and circulation is the result. Unfortunately nature seems to be blind, and rarely stops when a healthy condition is attained: it goes beyond this to determination of blood, and from this to the impairment, the two constituting inflammation.

In so far, then, as we have studied the inflammatory process, we find that it goes on in capillary blood-vessels; that the cause exerts a double influence—it excites the part, and it depresses the life of the part; that as a result we have an increased circulation to the part, the part has too much blood, in some of the vessels running rapidly but in others moving sluggishly, and may stop; and that, as a result of this, there is exudation from the capillaries into the inter-capillary spaces.

TERMINATIONS OF INFLAMMATION.—An inflammation will terminate in one of two ways—in resolution or in death of the part. In the olden time several other terminations were named, as induration, adhesion, metastasis, etc., but we will do better to study some of these as results, rather than terminations.

Resolution. Resolution is the restoration of the part to health, without change of structure. The inflammatory action may run very high, the disturbance to the body may be very great, and the disease may run its usual course as regards time, and still the structures may retain their integrity. When we think of resolution, we think of the phenomena of inflammation reversed. The irritation subsides, there is less excitement of the part, there is less blood sent to it, where the circulation was too rapid it becomes normal, and as it thus becomes normal the capillaries that were impaired seem to gain additional life, the blood commences to flow through them, and as the current becomes stronger the effused material is drawn into the vessels and carried away. This process goes on from capillary to capillary, the circulating blood imparting life to the next series of vessels, until finally the circulation is free in all. It is in fact a removal of irritation and excitation, and a restoration of life where this is impaired.

We may expect resolution in any case in which the cause has not so impaired the life of a part that it can not renew its own tissue; or the inflammatory process has not run so high, calling so much blood to the part as to strangle it, as it were. Of course our object is to get resolution as the termination of inflammation, for in this way the body is left intact. We wish, therefore, to see clearly that impairment of the life is common to all cases, and that this is increased by the inflammatory action as it progresses.

Death. We say that an inflammation will terminate in death when the life has been so far impaired that the tissue can not renew itself. This may result either from the intensity of the cause, impairment of the life of the body as a whole, or the further impairment of the part by the progress of the inflammatory action. It is not difficult to think of it when presented in this light, and a rational treatment is suggested. If we notice the first impairment of life from the severity of the cause, we immediately adopt measures to

strengthen the part and the body at large; and if we see that the life of the part is endangered by the intensity of the inflammatory action, we employ means to subdue it.

Death occurs in two ways: by suppuration, and by mortification. In the first case the tissue is transformed into pus, which is bland and more readily got rid of than the ordinary dead tissue. It is a process of life in death. In mortification we have a complete death of the part, which, if the person lives, is eventually cut off from the living tissue by a process of suppuration.

Suppuration occurs where the life of a part has been so impaired that it can no longer reproduce itself, and remain a portion of the living body, and not yet wholly lost, for pus has a vital organization. In this case we are not to think that the entire amount of tissue engaged in the inflammation will be broken down into pus. Usually this is limited to but a portion—the smallest portion—and in the other resolution is effected as before described. The two terminations go on at the same time, and we may think of them in this way: On the outside, where the life is least impaired, the irritation subsides, there is less oppression from too much blood, and the circulation is restored; this gives life to the tissues immediately within, and the circulation is restored in the next series of capillaries, and in the same way in the next, and the next, until it reaches the limit where the life has been too much impaired. At the center, where we may think of the greatest impairment of life, and where the capillary circulation has ceased, we have a gradual deliquescence of tissue, its forms being broken up. This gives us liquor pruris. The tissue cells can no longer build tissue, but they have not wholly lost their lives, and they form the pus cells and pus granules.

It will be seen that the pus has some life, and indeed that, by the process of suppuration, a part may be removed with comparatively little danger to the body at large.

Mortification. We usually think of mortification as seen in old age, and from severe injury, in which the part dies in its place, retains its form, and is eventually removed in a large mass. But we wish to apply it to all cases of death, other than by suppuration. In one case we will find that the part seemingly melts away, and is removed as an unpleasant sanies—rather the tissue becomes fluid and runs away; this might

be called deliquescence. Just one step from this we have *sloughing*, in which the tissue having lost its life, is partly removed by being solved as above, and partly in shreds and masses of tissue.

It seems hardly necessary to remark, that in these cases loss of life is combatted by those means which strengthen the circulation and innervation, and in maintaining a normal temperature. If there was an obstruction to the circulation of blood to the part, in the part, or from the part, we remove it if possible. Let us think of suppuration in the same way, and we will hardly fail of having a rational treatment.

SYMPTOMS.—In the olden time, and yet, the symptoms of inflammation are given as heat, pain, redness and swelling, and it will serve our purpose to study them in this order. We wish to know the meaning of these symptoms, both with reference to the lesion of structure, and to the employment of remedies.

Heat. It is said that the part is hot because it has too much blood, especially too much in active circulation. It is said that the temperature is increased because of increased oxygenation in the part. And finally, it is hot because secretion from the skin over it is checked, and the heat is retained. We recognize the fact that a certain standard of heat marks an inflammation that is running a regular course, and is likely to terminate in resolution. This standard is from 100° to 103°, and other symptoms being marked, a temperature below 100° or above 103° is unpleasant. At least it may be safely claimed that whenever the temperature of a part is maintained above 103° it is probable that there will be suppuration. In so far as the functions of the part are concerned, they can not be performed at a higher temperature than this.

Pain. Pain is evidently due to the excitation of the nerves caused by the increased circulation of blood to and in the part, and to the increased temperature of the part. Pain is the evidence of irritation, and, as a general rule, indicates its extent and intensity. Consequently when it is acute and sharp, we think of great irritation (excitation); when it is dull, heavy, tensive, or replaced by sensations of numbness, the adjacent tissues complaining of weight, fullness, and tension, it is the evidence of impairment of life, We keep

these two features of inflammation clearly before us—the excitation and the impairment of life. Sharp pain and acute sensibility indicate the one; dull pain, heaviness, numbness, indicate the other.

Redness. The color of a part is increased from the increased amount of blood in it. When we can see the part, as the eye, the amount of redness determines the intensity of the inflammatory action. The shade of color determines the activity or the impairment of the circulation, and thus becomes an important means of diagnosis. If the redness is bright, as of arterial blood, the circulation is active, and irritation preponderates; but if dull, dusky, or the color of venous blood, the circulation is enfeebled, sluggish, or stopped, and impairment of the life is the principal feature.

Swelling. The swelling of a part is accounted for in two ways: first, by increased amount of blood in the part; and second, by the exudation. The extent of the swelling will depend upon the looseness or shortness of the connective tissue. Where this is long and loose, parts may be very much swollen; but where it is short and dense, the swelling can not be great. Quite a considerable amount of swelling may be due to the increased amount of blood in the part, and in this case it will be tense and elastic. If principally due to fibrinous effusion, it will be hard; but if to serous effusion, it will be somewhat soft, compressible, inelastic. The term elastic swelling indicates an active inflammation and life; but the inelastic, doughy swelling, or very great density and hardness, impairment of life.

To these symptoms let us add two others: impairment or loss of function, and an effort to expel the cause of irritation.

Loss of Function. In the first stage of inflammation, the part manifests excitation, and the functional activity may be seemingly increased. We notice this especially in the brain, the mind being very active, and in rare cases of the secretory or excretory organs, secretion being temporarily increased. But in reality the function is only excited, not increased. As the inflammatory action increases, the function is more and more impaired, until it may be completely lost. Thus in inflammation of the brain, normal action, both in receiving impressions and in drawing conclusions, is gradually lost; the stomach and intestines lose their power of digestion; the

lungs lose the power to aerate the blood; and the excretory organs their function of excretion. This being the fact, we are in the habit of saying that loss of function indicates the amount and intensity of the inflammatory action—as is the loss of function, so is the gravity of the inflammation.

Efforts at Expulsion. It is a little singular that almost every organ or tissue should show an effort to remove the cause of inflammation, and to expel or remove the irritation. This is especially marked of the canals and cavities of the body. If of the throat, we will find the effort manifested in hawking and spitting, and short coughs; if of the upper pharynx, the air is drawn backward through the nose, and then comes the movement of the pharynx, fauces, and soft palate, for removal; if of the nose, we have sneezing and the inclination to blow the nose; if of the respiratory passages, we have cough; if of the stomach, the inclination to vomit; if of the intestinal canal, the desire for stool; if of the rectum, tenesmus; if of the bladder or urinary passages, a desire to urinate which can hardly be resisted, and forcible urination; if of the uterus, expulsive pain. Even when the inflammation is of other parts, there seems to be more or less of this feeling of expulsion.

These symptoms are therefore characteristic. If we have sneezing, we refer the disease to the nasal passages; if we have cough, we refer it to the respiratory apparatus; if we have continued inclination to stool, we refer it to the bowels; if we have constant desire to pass urine, we refer it to the urinary apparatus, etc. The reader will see the relation of these symptoms, and be able to estimate their true value.

Now if we sum them up, we will find the following characteristic local symptoms: The part is hot; the part is painful; the part is red, or at least its color is changed; the part is swollen; the function is impaired; and in many cases there is a characteristic effort to remove an offending substance. The more pronounced these symptoms, the graver the inflammation, and the danger of death to the part.

Constitutional Disturbance. With every inflammation we have more or less constitutional disturbance, and, as a rule, this is in proportion to extent of structure involved, to the intensity of the inflammatory action, and the importance of the organ or part involved. If the part is small and unim-

portant, the constitutional disturbance will be but small, as in circumscribed inflammation of cellular tissue. If small, yet important, it will be much more marked, as in inflammation of the eye, the larynx, a testicle, a tonsil, the prostate gland, the urethra, etc. When large portions of important organs are involved, as the lungs, or the brain, the symptomatic fever is the most prominent part of the disease.

Symptomatic Fever The fever and the inflammation are so closely related to one another that we can not disassociate them. As is the intensity of the inflammatory action, so is the intensity of the fever; and as is the intensity of the fever, so is the inflammatory action. If, for instance, we have an idiopathic fever, and an inflammation springs up in its progress, we expect all the febrile symptoms to be increased, the disease to become less amenable to remedies, and the danger to life increased. And if, during the progress of an inflammation, from any cause, we have an increase of the febrile symptoms, we expect that the inflammatory symptoms will be more marked, and there will be greater danger to the life of the part.

Again: if in inflammation we can control the fever, in the same degree we control the inflammatory action; and if we can stop the fever, we will probably stop the inflammation. So also, if an inflammation spring up during a fever, and we have local or internal remedies that will control and arrest it, we will find the fever less intense and more easily managed.

It is worth our while, therefore, to study the symptomatic fever, and to separate it into its component parts, and see the bearing of each upon the inflammatory process. This we will do after briefly noticing the symptoms.

Symptoms. Symptomatic fever presents the same symptoms as the idiopathic, less the forming stage, and in some cases it even has this. If the cause is cold, deranging the circulation, or a blood-poison introduced from without, or a blood poison generated within, either in wrong of retrograde metamorphosis or arrest of secretion, we may have a forming stage of several days. It presents the usual symptoms—there is gradual impairment of function, loss of appetite, debility, with evidence of local disease, and more or less pain. Then follows a chill, quite as well marked as in idiopathic fevers, and then febrile

re-action, in which all the symptoms of the inflammation are developed.

Frequency of Pulse. Among the prominent symptoms of fever is acceleration of the pulse, the blood being distributed more rapidly through the body. If we think of it, this very closely resembles the condition of the circulation in the inflamed part, to which we have an increased circulation, and in a portion of which the movement of the blood is rapid. The movement of the blood is under the control of the sympathetic nervous system, not only in the body at large, but in each individual part. There is excitement of these nerves locally when we have determination of blood to a part; there is excitement of this nervous system in the whole, when we have the general increased rapidity of the circulation.

Just in proportion to the frequency and the change in the pulse is the intensity of the local disease. We can readily see how this is if we think for a moment, and to the local excitation add the general excitement. And so we say, that just in proportion as the general circulation is brought back to the normal standard, just in that proportion the part will be relieved. It is not only frequency that we look at—change is sometimes quite as important. The pulse *full, hard, sharp, oppressed, small, irregular, feeble,* have all to be estimated, and the remedies that rectify these wrongs, and give a normal circulation, employed.

Increase of Temperature. Increased heat was one of the prominent symptoms of the inflammation, and it is also one of the pronounced symptoms of the symptomatic fever, and one that we closely estimate in every form of disease. We may put the proposition in the usual form—as is the temperature so is the performance of every function of the body; as is the temperature so is the intensity of, and danger from, the inflammation.

Increase of temperature is associated with increased frequency of pulse, as we have already seen. As the temperature is increased, we have disturbance of the nervous system, arrest of secretion and excretion, impairment of digestion, impairment of the blood, and impairment of nutrition. A temperature of 98° is a condition of healthy life in the body at large and in each part. A higher temperature, therefore,

looks toward death, and may influence the death of the inflamed part.

Arrest of Excretion. Deficient excretion from skin, kidneys and bowels, is among the prominent symptoms of fever. From this we have material retained in the blood that should be removed, and which evidently serves as a cause of irritation, both general and local. It is a common source of blood poisoning. If in inflammation excretion is markedly arrested, we find all the symptoms increased: the irritation is greater, there is a more active circulation to the part, and the life of the part is impaired by the changed condition of the blood.

If excretion is restored, the inflammatory symptoms are lessened, and the part relieved, and this in so marked a manner that the relation between the two can not be mistaken. In a severe inflammation, a moist, active skin, free excretion from the kidneys, and regular movement of the bowels, is certain to be followed by an abatement of the inflammatory action. It is true that secretion can not be established until the pulse is reduced in frequency and becomes normal, and the temperature comes down to 100°; but even when these last are obtained, secretion may not commence. We have a better circulation and a better temperature, but there is still arrest of secretion, and the inflammation continues, and looks toward suppuration. Now we use means to establish excretion, and at once resolution commences.

We associate excretion with absorption of the effusion; and when material has been thrown out into a part, and absorption does not go on as it should, we always think of accomplishing it by establishing free excretion. These remedies undoubtedly favor retrograde metamorphosis, as they also stimulate the excretory apparatus to take hold of the material, and carry it out of the body; and, as is commonly believed, they stimulate absorption of any adventitious material outside the blood-vessels. Thus in chronic inflammations especially, they are among the prominent means of cure.

Disturbance of the Nervous System. Wrongs of innervation are common in symptomatic fever, and always intensify the inflammatory action. Whether it is excitation or depression, or any of the many changes we note in innervation, the effect will be the same. We might note the influence of the malarial poison that gives periodicity, which, though influencing

the blood, also acts through the nervous system. Let this be marked and continued and the inflammatory process is intensified, and may destroy life. Arrest the periodicity with quinine, and the inflammation is modified or arrested.

Given the flushed face, bright eyes and contracted pupils, with restlessness and sleeplessness, and Gelseminum becomes a direct remedy to arrest inflammatory action. But it is not necessary to give examples here, as we will get them when we study the action of remedies.

Changes in the Blood. We note that any change from the normal condition of the blood uniformly influences the progress of an inflammation. "The blood is the life of the man," says the inspired writer, and we repeat that the blood is the life of the part. Given a case of inflammation, and the termination may depend upon the condition of the blood. If the blood is good, the part will live, and the termination will be in resolution; if the blood is changed and bad, the part dies.

When we study exudation, we find that the material may be *euplastic*, *cacoplastic*, or *aplastic*, or a material that has life and can be organized or readily absorbed; a material that is low in life, that can not be organized, and is difficult of absorption; and a material that can retain its condition but a limited time, must break down and will carry with it the tissue, and can not be absorbed. These are all drawn from the blood, and we say, "as is the blood, so is the deposit"—from a good blood a good deposit; from imperfectly organized blood this imperfect material.

We have already studied "dyscrasias," or bad blood, and we found that there was something real in the common belief, and that there might be unpleasant material in the blood that only waited for an irritation to be thrown out. In inflammation we have such an irritation, and with the constitutional disturbance we have the very conditions necessary to increase the amount of such material. Thrown out into an inflamed part, we have the material that will cause local death. Thus we distinguish certain inflammations as having this wrong. We have "white swelling," some diseases of bone, hip-joint disease, iliac and psoas abscesses, etc., and we also have inflammation of the lungs and other structures in which the condition is quite as clearly marked.

Special poisons, as *erysipelas*, *diphtheria*, and some hospital infections, exert a morbid influence, and give a peculiar character to an inflammation. We recognize their influence in intensifying all the phenomena, as well as impairing the life, and we endeavor to keep our patients free from them, and use every means to overcome them in the early stage of the disease. The rheumatic wrong of the blood, though less severe, may be noted as calling for special remedies.

Simple *alkalinity* or *acidity* of the blood exerts quite as marked an influence upon the inflammation as it does in fever. Given, the *deep-red* tongue, and we are sure that the inflammation is not doing well, and can not do well, and we give the acid with the same certainty that we would if it was a case of continued fever. Or if the tongue is broad and *pallid*, we expect to get relief for the inflamed part by giving a salt of soda, as we expect to get it in fever.

Typhoid symptoms are not uncommon in the graver cases of inflammation, and we recognize the impairment of the life of the inflamed part, and its danger, as we recognize the general danger in a fever with these symptoms. A typhoid blood means death, and needs to be looked after early. What are typhoid symptoms? If the mouth is moist, the tongue is *dirty;* if the tongue is dry, the coatings have a tinge of *brown*, gradually growing deeper as the typhoid condition increases.

Impairment of digestion and wrong of the digestive apparatus are common to inflammations and fevers, and exert a like unpleasant influence. The sick must have food, if they are to retain strength to resist the processes of disease; and thus it is our business to see that the digestive apparatus is maintained in good condition, and that the patient has food.

TREATMENT.—The treatment may be studied as it is local or general, the local treatment consisting of such applications as may be made to the part, and such internal remedies as act specially upon it, and the general treatment having reference to and controlling the constitutional disturbance.

In both cases it is well to think of it as it relates to the two important phases of the inflammation—the irritation with excited circulation, and the impairment of life with enfeebled or arrested circulation. It would seem that these are opposite to each other, and opposite means will be required

for each, and this is to some extent the fact. But if we think that a removal of the irritation lessens the oppression of the part, and that means which remove the irritation need not depress the life, the first part of the treatment will be clear. And again, if we can see that means which stimulate a better circulation of blood where this is impaired, need not cause irritation, this part of the treatment will be plain. But means that depress the life must be avoided as far as possible. In some cases where there is great excitement and an active circulation, the part being strong, they may be permitted in the early stage, but they should be used with care, and their effects watched.

If we can remove the irritation, it is evident that we will check determination of blood to the part, and we will lessen the excitement of the circulation in the part, and as already noticed, by doing this we may even relieve the oppressed capillaries.

We have some very common means to consider here—the use of cold packs, or hot packs, sedative fomentations, and poultices. They all look to removing irritation, and lessening the excitation, but will be adapted to different cases. One action is to remove the excess of temperature, especially by putting the skin in better condition for doing its work.

Among these means we may include the topical action of sedatives—Veratrum, Aconite, Gelseminum, Lobelia, Belladonna. Stramonium, etc. When the remedy can be directly applied we find it exerts the same influence upon the part that it does upon the circulation and innervation at large. Thus in superficial inflammation of the cellular tissue, as in boils, felons, and even more extensive disease, painting the part with. Veratrum and Aconite will frequently arrest the disease at its commencement.

It is just the same if the remedy has an elective affinity for the part, and we give it by mouth. Say, for instance, it is mammary inflammation, and we give Phytolacca; intestinal inflammation, and we give Dioscorea; or of the mucous membrane, and we give Ipecac; of the pleura or parenchyma of the lungs, and we give Bryonia; of the brain, and we give Gelseminum; or of the larynx, and we give Aconite.

When we come to think of the case in which impairment of the life is the most marked feature, the treatment changes.

Now the principal object is to sustain the life, rather than to remove irritation. We apply stimulants of various kinds, we use frictions, we apply dry heat, and we may even use the class of remedies that oppose the breaking down of organic bodies—antiseptics. We do not propose to run any risk of rotting a part away with poultices, and if we use them we see that they are stimulant and tonic. Support also plays an important part in local treatment. A part may die because it is not able to support itself, much less do a portion of the work of the body. Thus we strap or support the mammary gland or testicle; we do the same to an inflamed joint, and sometimes even when the common tissue is involved. Rest and support are means of husbanding the life of a part, as certain stimulants and tonics are means of increasing it.

We also have internal remedies that exert a stimulant influence upon organs or parts, and these are selected in the same way and for the same reason. It will hardly be necessary to name them, for the reader will recall a class of stimulants to the respiratory apparatus, stimulants to the stomach and intestines, stimulants to the urinary apparatus, stimulants to the skin, and stimulants to the nervous system. These remedies are of great importance when the impairment of life preponderates, and we wish to associate them in our minds with this.

General Treatment. It is very fortunate that a good general treatment for the symptomatic fever is a good local treatment for the inflammation; that if, in any of the severer inflammations, the various functions of the body are restored to the normal standard, the inflammation will cease. In some situations we have no special remedies that influence the part, and we depend wholly upon the general treatment, and such local applications as we can make.

In addition to the control of the fever, the class of sedatives exert a most marked influence upon the inflammatory action, especially in removing the element of irritation. As we lessen the frequency of the pulse, and obtain a more uniform circulation of blood in all portions of the body, we lessen the flow of blood to the part, and relieve the inflammation. This, of course, is more marked in the early stage, when excitement of the circulation is marked, than at a later stage when we have impairment of the circulation and exudation. At the

commencement of an inflammation we may use the sedatives freely and obtain their full action without danger, whilst at a later stage we use them with greater care, and get the influence gradually.

Here, as in fever, Veratrum is the remedy when the pulse is full and strong, and Aconite when it is frequent and small. Lobelia comes in when the circulation is oppressed; Rhus when the pulse is sharp in its stroke; Bryonia when the blood seems to run in a continuous current; Macrotys when the waves of blood are very distinct; Belladonna when there is tendency to congestion, and Gelseminum when there is evident determination of blood to the nerve centers.

The simpler the prescription the more direct the remedy, as a rule. If one is forced to take a single remedy he is very likely to think of which will have the most direct action. As a basis we select Veratrum or Aconite as indicated, and then add of the other group any *one* that may be called for by the symptoms. I prefer to dispense my own medicine, and calling for a half-glass of water, I add of Tinct. of Veratrum gtt. x to xxx, or of Tinct. of Aconite gtt. v to x; either of the others may be added in the usual quantity, the dose being a teaspoonful every hour.

With the sedatives we also think of the bath to remove the excess of heat, and place the skin in better condition to regulate the temperature. In some cases it is an alkaline bath, in others an acid bath, soap and water, a stimulant or tonic bath, fatty inunction, or whatever is indicated in this particular case.

As soon as sedation is obtained, and the temperature reduced, we think of establishing secretion. It is very frequently the case, that just as soon as the pulse and temperature come down, the skin, kidneys and bowels commence to act, but if they do not, we have special means to influence them. Mild diaphoretics, alkaline diuretics, and mild laxatives and cathartics should be employed.

The wrongs of the stomach and intestinal canal are quite as common in inflammations as in fevers. There may be irritation of the stomach, marked by the elongated and pointed tongue, with reddened tip and edges, and tenderness on pressure over the epigastrium, calling for special means to

relieve this, and care in the subsequent treatment that it is not reproduced. There may be the atony with morbid accumulations, marked by the heavily coated tongue at base, sense of nausea and disgust for food, with feelings of fullness and tension in the epigastrium, calling for an emetic, a mild cathartic and sulphite of soda. Or there may be the nausea and vomiting, or simple atony with arrest of osmosis from stomach to blood-vessels, with expressionless mouth, and unpleasant yellow sallowness of surface, that asks for Nux Vomica. Or there may be the atonic tongue, uniformly coated, with fullness of tissue, and especial fullness of veins, calling for Podophyllin.

Then again we may have the broad and *pallid* tongue, calling for an alkali, and we give a salt of soda; or the *deep red* tongue, asking for an acid, and we give dilute muriatic acid. Or early in the disease we may see the need of the antiseptics to control the symptoms known as typhoid, which exert so unfavorable an influence upon the local disease. We may have the moist, pallid and *dirty* tongue, calling for sulphite of soda; the tongue of natural color but *dirty*, suggesting sulphurous acid; deep color, *dusky-red*, or venous, Baptisia; *deep-red, brown* coatings, muriatic acid; *bad odor*, as from putrescence, chlorate of potash. Whether early or late, the action of this class of remedies seems just as definite and important as in cases of fever.

The condition of the nervous system needs to be looked to. We have here the irritation of the brain with determination of blood, with flushed face, bright eyes, and contracted pupils, calling for Gelseminum; the tendency to congestion, with dull expressionless face, dull eyes, dilated pupils, and inclination to sleep too much, which is met by Belladonna; the acute irritability which is marked by increased sensitiveness, restlessness, sleeplessness, with marked contraction of tissues about the eyes and base of the brain that calls for Rhus; the sleeplessness and want of rest that calls for small doses of Opium or Morphia, with Quinine; the want of innervation, that calls for small doses of Quinine, or the want of innervation from the spinal cord, that calls for strychnia; the simple nervousness, with fear of impending danger, that will be relieved by Pulsatilla.

It has already been named, that where there is distinct periodicity, the patient having been prepared for its use, antiperiodic doses of Quinine is a direct means of arresting inflammatory action.

In addition to the ordinary wrongs of the blood grouped under the term "typhoid," we have certain special ones that may be studied with advantage. Thus every inflammation may be erysipeloid, as it may be diphtheritic, or may have that increased virulence that leads to deliquescence or sloughing, without apparent cause. There is something peculiar in the symptoms in these cases that should cause us to recognize the unpleasant character of the disease. The pain is burning or scalding; the color is very vivid; the surface is glistening; the heat is pungent; and the epidermis is inclined to separate in blisters. The remedies we study in this connection are the Rhus, Veratrum, Tincture of Muriate of Iron, Baptisia, Phytolacca, and possibly Apis and Belladonna. As local applications we have Iron, Veratrum, Salicylic Acid, Sulphurous Acid, and Permanganate of Potash.

The necessity of a good condition of the digestive apparatus, and of good food, can not be too strongly insisted upon. Food is the life of man, and one can not do without it in disease. Tonics, restoratives and stimulants have also their importance, and are used in the same way as has been described in considering the idiopathic fevers.

Lastly, let it not be forgotten that rest and good nursing are essential elements of a good treatment. We always want rest—to the body at large and to the part—and it requires some thought to know how we can best obtain it. But if the physician will think, the problem solves itself. One person will find rest by change of position, another by fixed position; one by darkness and quiet, another by light and something to attract the attention and amuse; one by avoidance of company, and another by seeing his friends. "Every man is a law unto himself," and every man requires individual study.

CHAPTER III.

DISEASES OF THE RESPIRATORY APPARATUS.

The respiratory apparatus, it will be recollected, consists of the nares, larynx, trachea, bronchi, parenchyma of the lungs, and the investing serous membrane of the pleura. Each of these parts may be the seat of disease, either acute or chronic, or two or more parts may be involved at the same time. We diagnose these diseases by general symptoms, and by physical signs; the first, arising from change of function dependent upon the disease, and the influence of it upon the system, are never constant, and in some of these affections entirely insufficient to determine their character; the physical signs being palpable alterations of sound, movement, shape, etc., are always constant and unfailing. The consideration of physical diagnosis, therefore, demands a prominent place in this chapter.

PHYSICAL DIAGNOSIS.

Under this head might be comprised the conformation of the thorax, respiration, cough, sputa, and the information obtained from percussion and auscultation. Some of them will be considered with the general symptoms in the consideration of each disease, but it is well enough to study them in a group.

Conformation of the Thorax. — As a general rule, the healthy thorax presents a marked uniformity in the contour of each side, the outlines being rounded and smooth. As disease is very frequently confined to one side, we compare the sound with the unsound side, and thus readily detect any alteration in shape. It is only in chronic affections that we notice marked change; it is true, that in pleurisy the effusion will sometimes be rapid and in large quantity, causing bulging of the intercostal spaces, but this is the only case. The size is in-

creased from the presence of effusion, or from emphysema; circumscribed enlargement may be caused by a tumor, or an aneurism. It is diminished in those cases in which the structure of the lung is destroyed, as in phthisis, and suppurative inflammation, and in a less degree by extensive solidification.

Respiration.—The extent and freeness of the respiratory movement, determines to some extent the capability of the lungs to properly perform their function. To determine this, we sometimes examine the movement of the walls of the thorax and abdominal muscles; if it is necessary we measure the amount of thoracic expansion, by drawing a tape line from the spinous process, following the rib to the center of the sternum; the difference in measurement between expiration and inspiration, determines the capability of that side of the thorax. Respiration normally is both thoracic and abdominal; in disease it may be either the one or the other. Thoracic respiration occurs in cases of inflammation of the diaphragm, or its pleura, or of the upper abdominal viscera, or peritoneum. It is abdominal in pleurisy, pericarditis, in extreme debility, and in apoplexy. Respiration is increased in frequency from two causes: 1st, in consequence of an increased frequency of the circulation, in which it bears a normal relation to pulsation, one to four; and 2d, in disease of the respiratory apparatus, there not being necessarily any proportion between the frequency of respiration and pulsation. A slow and free respiration indicates an easy circulation of the blood, sound lungs, and an unimpaired distension of them. If the respiration is large and attended with difficulty, much exertion being necessary, it indicates loss of nervous power, and approaching coma or stupor. The short respiration, when unattended with pain, is a very certain symptom of obstruction of the lungs, as in hepatization, phthisis, hydro-thorax, etc.

Difficult respiration or dyspnœa is manifested by the patients' laboring for breath: generally they assume a sitting or upright posture, grasping some object firmly by the hands to fix the shoulders, and thus give greater power to the inspiratory muscles. It is caused by contraction of the air passages, effacement of the air cells, disease of the circulatory system, causing engorgement of the lungs, and want of innervation.

It may come on gradually or insidiously, or it may be violently sudden. When continuous, though but slight, it is singularly fatiguing and exhausting; but when severe, even when paroxysmal, it causes intense suffering, attended with a feeling of impending death. In every variety of difficult respiration the circulation through the lungs is impeded, hence a marked change in the pulse from this cause. Respiration in health is inaudible to the ear away from the chest, therefore, when heard, it becomes an evidence of disease. The *stertorous* or *snoring* respiration in disease, is symptomatic of a paralytic state of the lungs, as in apoplexy, congestion of the brain, coma, etc,; though occasionally it depends upon an accumulation of mucus, pus or blood in the bronchia. The sibilant respiration is observed in diseases in which there is contraction of the air passages, with dryness; when marked, it indicates spasmodic contraction; or it may arise from an exudation upon the surface of the mucous membrane, rendering the caliber smaller, dryness of the air passages being present in all cases. The crepitant respiration indicates accumulations of a very tenacious mucus or pus.

COUGH.—Coughing arises from an irritation of the sensitive nerves distributed to the various parts of the respiratory apparatus. The purpose fulfilled by the act of coughing, is the removal of irritating matters which may be in the air-passages, and in a majority of cases it directs our attention to this part of the system as the seat of disease. It may, however, be sympathetic, arising from disease of the stomach, liver, and other abdominal viscera. As the tone or special character of the cough varies, according to the condition of the organs by which it is produced, this change in its character becomes an element in diagnosis. A *hollow* or *barking* cough makes the impression on our mind, that there is lack of expulsive power, and a want of tonicity in the respiratory organs. It is heard in the last stages of consumption, bronchitis, and sometimes in nervous affections. When *sharp* or *ringing*, it is dependent upon disease of the larynx. A *hoarse* cough is dependent upon some relaxation, with increased secretion, in the larger air-passages. It is observed in incipient catarrh, croup, chronic laryngitis, and anginose affections. In asthma the cough is wheezing; in certain diseased conditions of the larynx it is

belching; and paroxysmal in whooping-cough and hysteria. It may be dry, indicative of want of secretion; or humid and moist, showing that secretion has taken place.

If the surface of the chest be auscultated during the cough of a healthy person, a short, dull, and indistinct and diffused sound, quickly produced, is heard, attended with a sensation of succussion in the interior of the thorax. The morbid manifestations of pulmonary cough are three: bronchial, cavernous, and amphoric. The *bronchial* cough is harsher and more concentrated than the cough in health: it is met with whenever there is an unnatural density of the lungs, when they are compressed by fluid, or when the bronchi are enlarged: so in phthisis, pneumonia, pleurisy, and dilation of the bronchi in chronic bronchitis. The *cavernous* cough has a hollow and metallic character, and gives the sensation of being produced in a small excavation; there is a strong impulse in its transmission to the ear, and it is commonly associated with the cavernous rhoncus. The *amphoric* cough is loudly resonant and metallic in its character, and is met with where there are large tubercular excavations.

Sputa.—Much may be learned regarding disease of the respiratory organs by a critical examination of the sputa. We form an opinion of whence the sputa comes from the exertion used in raising it. Thus spitting is the act by which the saliva and other matters in the mouth are ejected. By *hawking*, the mucus accumulated in the posterior nares, pharynx, and fauces is got rid of. This is attended with a peculiar inspiratory effort, and followed by a guttural cough. Expectoration is the effect of cough, and indicates that the matters raised proceed from some part of the respiratory apparatus below the glottis.

The character of the sputa may be studied with reference to quantity, quality, consistence, form, composition, color and odor. The sputa is scanty in the first stages of active inflammation of the lungs, bronchi, larynx, pharynx, and posterior nares, and is frequently entirely wanting. It is also scanty in some cases of chronic disease—as bronchitis, laryngitis, phthisis, etc., the cough being dry and rasping. It is more copious toward the close of acute disease, and very abundant in many chronic diseases of these organs—as in *broncorrhœa*,

where a pint or quart of mucus is thrown off in the course of twenty-four hours. In consistence it is serous or watery in the forming stage of bronchitis, pulmonary congestion, and vesicular emphysema. It is mucous and more or less viscid, as the result of acute inflammation of the mucous lining of the air tubes, as we see in bronchitis, pneumonia, and laryngitis. It is purulent as seen in the third stage of pneumonia and phthisis pulmonalis; or a muco-pus, as in some cases of bronchitis. It sometimes contains small roundish masses, either tubercles or desiccated mucus—the difference being determined by the cheesy consistence of the first, and the tenacity of the second when rubbed down with water. Blood, either fresh, bright and fluid, or dark, clotted or broken down, is frequently a constituent.

The *form* of the sputa is owing very much to its consistence. Thus, if very viscid, it will be elongated and stringy, as we observe in acute bronchitis. It may be frothy, flattened and run together in the vessel, which is characteristic of pneumonia; or it may be in distinct rounded and almost hemispherical masses, as in the expectoration of tubercles in phthisis pulmonalis; or they may assume the shape of the cavity from which they were raised, as in pseudo-membranous laryngitis, the bronchitis of measles, and sometimes in chronic bronchitis and phthisis. The sputa is composed of the natural secretion of the mucous membrane of the air passages, varied with the altered products of secretion, and with the admixture of extraneous matters, as blood, tubercular matter, etc.

In color it is white or ashen in the beginning of acute affections of the lungs, pulmonary congestion, and asthma. When yellowish or greenish, it indicates a decrease of the inflammation; and especially if it be thick, a resolution of the disease. The rusty sputa, looking as if it had been tinged with the rust of iron, is characteristic of pneumonia where much congestion exists. Sputa streaked with blood is indicative of the existence of a high degree of inflammation in pneumonia; it is of frequent occurrence in sthenic bronchitis, and sometimes in chronic bronchitis, though here it is an unfavorable symptom. In bronchitis, and the first stage of phthisis pulmonalis, the sputa has a faint and sweetish smell. When the secretion is copious, as in catarrh and bronchitis,

the smell is sickening; when purulent matter is expectorated it is fœtid; in gangrene of the lungs it is decomposed and putrid. In some cases, the sputa has been known to have a urinous odor; in others it was bitter, and showed traces of bile, an hepatic abscess having opened into the thorax.

AUSCULTATION AND PERCUSSION.

We derive the greatest amount and most positive information in diseases of the lungs from auscultation and percussion. The first may be defined to be the act of listening to sound formed within the body by the movement of its different parts. The second, to the sounds heard when a portion of the body is struck upon.

PERCUSSION.—Percussion may be either mediate or direct; in the first, something is placed between the instrument striking and the part struck; in the second, the blow is immediately upon the body. We perform percussion of the thorax usually by placing one or two fingers of the one hand *flat* upon the surface, and striking with the fingers of the other hand, bent at a right angle. Much care must be used in adapting the hand to the chest, that it lies evenly and becomes as it were a part of the wall, and in striking, that the blows be uniform and direct. Again, as the resonance is greater in proportion to the solidity of the walls, we direct that the patient be placed in such position as will place the muscles in a state of tension during the operation.

The thorax, considered in reference to sound, might be compared to a drum, the sonorousness of which depends upon the vibration of its parchment, and varies with its state of tension, and of the medium in which it vibrates. Thus, were the parchment thickened by layers of paper or leather fastened to it, the note would become deadened; if the drum were filled with sponge the same result would ensue; and if filled with sand, nothing more than a short, dull noise would be given out. The frame of the chest, consisting of thin, flat bones, fastened at one extremity by ligaments, and at the other by elastic cartilages, and in ordinary cases covered only by a moderate layer of muscles, fat and skin, is favorably constructed for resonance on being struck. The cavity, however, is not filled with air, like the drum, but with a spongy,

elastic substance, containing within itself a large quantity of air, and therefore offering free motion of its walls.

In health, the chest, when struck, emits a hollow sound, which varies in different parts of it, and is likewise affected by many conditions other than those arising from disease of the viscera contained within. Where the walls of the thorax are thick, we have less resonance on percussion—as over the pectoral muscles, over the clavicle, scapula, etc. The resonance is also in proportion to the amount of lung situated beneath the part percussed, and is therefore less where the lung is thin, as under the false ribs. The resonance of the lower portion of the lungs may also be affected by the abdominal organs contiguous to them—the liver on the right side, the stomach on the left. Thus, the liver may be enlarged and forced upward, encroaching on the cavity of the right lung, displacing it and giving rise to the symptoms of thoracic disease. In this instance, percussion over the right false ribs would give a dull, heavy sound, like that produced in hepatization of the lungs. The stomach may be continuously distended with gas, and displace the left lung; in this case the sound would be resonant, like that occurring in emphysema, or where a cavity exists in the lungs.

In respect to the contents of the thorax, if the spongy lung should be in any part replaced by air, percussion would elicit a clearer sound over that spot than over other parts. If it should be replaced by solid or fluid matter, the sound would be dull in proportion to the solidification. We are thus enabled to determine by percussion whether the lungs are in normal condition as to amount of air contained, or the variations of excess and defect.

PERCUSSION IN DISEASE.—The weight of the frame of the chest may be increased in particular spots, by the presence of tumors, the products of inflammation, or effusion into the cellular tissue; thus giving rise to increased dullness. A great many diseases tend to alter the character of the contents of the thorax, some diminishing their density, and others increasing it. Of the former, are pneumo-thorax—the air being between the surfaces of the pleura, and emphysema in which the air cells are dilated, and sometimes ruptured, whereby the air bears a greater ratio to the lung tissue.

Again, some diseases destroy portions of the lung, a cavity being formed connecting with the bronchial tubes, and filled with air. All these diseases produce the same effect in respect to percussion, rendering the sound much clearer than it is in health, on the principle above stated. The density of the contents of the thorax is increased by the presence of fluid in the pleural cavities, by distension of the pericardium, aneurism, and solidification of the lungs.

In some instances of pleuritic effusion, the fluid is limited by adhesions, and the resulting dullness may be confined to but one spot of the thorax, but usually it is only bounded by the pleural sac. In this case, if in large quantity, the whole side will be dull on percussion; but if less fluid exist, the seat of dullness will vary with the position of the body, and will follow the fluid, which gravitates to the lowest parts. The pericardium may be distended with blood or serum, displacing the lung, or the heart may be hypertrophied, giving rise to dullness over the region of this organ. Very rarely the pulmonary artery or aorta may be dilated so as to reach the surface of the chest, or an aneurism may be formed, or a tumor developed within the cavity of the thorax. In regard to fluid in the lungs, as long as it is confined to the bronchial tubes, the sound of the chest on percussion will not be affected, because there is plenty of elastic lung between the tubes and the surface of the chest. Dullness will, however, result from congestion of the cellular portion of the lungs in contact with the walls of the thorax, whether of a passive character, being the result of obstruction to the circulation, or of an active character, as in the early stage of inflammation; and also from abscesses or excavations containing fluid and approaching the surface.

Solid matter may also replace the lung, and give rise to dullness, —as in strumous or encephaloid disease of the mediastinum; tubercles in the lungs; pneumonia, chronic or acute, in the stage of hepatization; pulmonary apoplexy, etc. In all these cases the chest will sound dull over the spots corresponding to these solid deposits. It must be remembered, however, that a considerable quantity of solid matter may exist near the center of the lung, and may also be diffused in small masses through healthy lung, as in some cases of acute phthisis, without engendering dullness of sound. Percussion

gives another valuable indication, too generally overlooked, *i. e*, the sensation of resistance in the part percussed, depending on increased density in the subjacent lung. When the sense of touch is more delicate than that of hearing, this source of diagnosis is of great value. In acute phthisis, when, from the similar condition of both lungs, there is no means of comparison, it is often a most important sign.

AUSCULTATION.—Auscultation, like percussion, is either mediate or direct. By the first we understand the hearing of the sounds produced within the thorax, by means of an instrument termed a *stethoscope;* by the second, the listening with the unaided ear. Stethoscopes have been made of various materials, and in every form, from a penny whistle to a trombone. They are, in many cases, an egregious humbug, interfering with, instead of assisting, the object of out investigation. The simple wooden cylinder is undoubtedly the best form of stethoscope, and I prefer it without any cavity—simply a round piece of hard wood, adapted to the chest at the one extremity, to the ear at the other. The ear, however, is the preferable instrument, as it is always present, convenient of use, and more reliable than any artificial aid. It is not a stethoscope, but the power to concentrate the attention, and call into action that beautiful mechanism that intensifies hearing in the act of listening, that gives success in auscultation. This, like everything else, is obtained by patient, persevering study and continued practice.

In availing himself of auscultation as a means of diagnosis, the physician must know the normal sounds produced by respiration. By applying the ear to the chest during inspiration, a soft sound is heard, accurately likened to that produced by a person sipping air with his lips. Sometimes this sound is prolonged so as to accompany the escape of air from the chest; always, however, in healthy persons, being less intense in expiration than in inspiration. This is called the vesicular or respiratory murmur, or pulmonary respiration. At certain parts of the chest, over the large bronchial tubes, as between the scapula, the sound during inspiration is coarse and blowing; this is called the bronchial respiration or sound. Over the trachea the sounds are much stronger than those heard over any part of the chest; they are nearly, if not quite, equal

in duration and intensity, both in inspiration and expiration. They possess a peculiar, hollow, blowing character, as if wind was blown from a tube into the ear; this is called the tracheal sound.

When the ear is placed over the trachea, or between the scapula of a person in the act of speaking, the voice appears to issue from the spot to which the ear is applied. This resonance of the voice is called broncophony. In other parts of the chest no resonance of the voice is perceptible.

The sounds heard in auscultation of the lungs in disease, are modifications of the natural respiratory murmurs, and adventitious sounds which supersede them called *rhonci*. Natural respiration may be variously altered; sometimes the pulmonary sound is increased above its normal standard, at others it is diminished or disappears entirely. The intensity with which sound reaches the surface of the chest may depend either upon its formation or its propagation. Increased intensity of the respiratory murmur may occur in the parts of the lung adjoining those rendered unfit for the purposes of respiration, the sound parts of the lung receiving air in greater quantity to make up for the deficit caused by want of action in the diseased part. Thus, it will be found that when the whole, or a large part of one lung is rendered impervious to air by disease, the intensity of the respiratory murmur will, in nearly all cases, be increased in the opposite lung; this has been termed puerile respiration, as the sound is much more intense in children than in adults.

Decreased intensity or entire suspension of the respiratory murmur, may take place by the deposit of solid or liquid matter in the air cells, minute bronchial tubes, or intercellular tissue, whereby the expansion of the lung and the passage of the air through the minute tubes in which this sound is generated is prevented. This occurs in pneumonia, pulmonary apoplexy, and phthisis. It may also take place from any obstruction which prevents the air from entering the bronchial tubes; as from accumulations of mucus, pressure caused by diseased bronchial glands, aneurism of the aorta, etc. The intensity may also be affected by the medium through which it is propagated; thus, the sound will vary in intensity according as the thoracic walls are thin or loaded with fat, serum in the cellular tissue, lymph on the pleural surface, or

tumors of various kinds. It will also be deadened if the lung be separated from the thoracic wall by effusion in the pleural cavities: in this case the sound will be impaired both in its formation and propagation.

Respiration is sometimes incomplete, the respiratory murmur being deficient at its beginning or close; this accompanies spasmodic asthma, or whenever there is spasm of the bronchial tubes. It may also be jerking, having two or three interruptions during each inspiration; this is met with in asthma, incipient pleurisy, and certain cases of tuberculous infiltration. The respiratory murmur is a smooth, even, musical sound, when the lungs are in a healthy condition. It becomes rough and harsh in its character in certain diseases, and is then a very important sign; thus, in the first stages of phthisis, it is sometimes the only certain and available physical sign of the affection.

When the bronchial sound is heard over any portion of the chest other than between the scapula, and over the top of the sternum, it arises from condensation of the pulmonary tissue; this occurs in pneumonia, tuberculosis, etc.

The *adventitious* sounds are those that either mask or suspend the natural sounds. They are caused by alteration in the caliber of the bronchial tubes, or by air bubbling through fluid contained in these tubes, or in cavities of the lungs. These sounds are either dry or moist, and may be classed as follows:

Dry.—Sibilant, Sonorous, Dry Crackling.

Moist.—Crepitant, Sub-Crepitant, Mucous, Cavernous.

The sibilant and sonorous rhonci are heard in cases where the bronchial tubes are diminished in caliber, accompanied with dryness of the mucous membrane, as in the early stage of bronchitis; the sibilant rhoncus being produced in the small tubes, the sonorous in the large.

The dry-crackling rhoncus is composed of a succession of minute, dry, short, sharp, crackling sounds, few in number, rarely exceeding three or four, co-existing with inspiration. It is heard in the first stage of phthisis, and is indicative of unsoftened tubercle in moderate quantity.

In bronchitis, in the first and second stages of pneumonia, in certain forms of pulmonary congestion, and sometimes where there are cavities formed within the lungs, the air passages contain fluid of various degrees of consistence. In passing

through this fluid the air forms bubbles, which bursting give rise to moist rattles, the sound of which varies with the size of the tubes or cavities in which they are formed.

Of these moist rhonci the *crepitant* and *sub-crepitant* are formed in the smallest bronchial tubes and in the intercellular passages. The crepitant rhoncus resembles the sound produced by rubbing a lock of hair between the fingers near the ear, and is the physical sign of pneumonia in the stage of engorgement and resolution. In the sub-crepitant rhoncus the sound is more moist, and gives the idea of a greater amount of liquid; it occurs in capillary bronchitis, idiopathic and tubercular, in pneumonia at the period of resolution, pulmonary apoplexy, and œdema of the lungs.

When the sound is produced in the larger bronchial tubes, it is called the *mucous* rhoncus. This sound is heard both during inspiration and expiration, and the larger the tube the louder the sound, and the more ringing its quality. This is heard when there is increased generation of sound, as in bronchial diseases; or when the lung is rendered a better conductor of sound, as in solidification of the lungs from various causes. Thus it is heard in acute bronchitis, when secretion is established; in chronic bronchitis, asthma, etc.; and in the second case in pneumonia, tuberculosis, etc. In some cases of great debility a large quantity of mucus often accumulates in the air passages from want of power to expectorate, giving rise to the mucous rattle. This sound takes the name of the *tracheal* rattle when it is very loud and ringing, and very properly so, as it is produced in the trachea. In some cases of chronic bronchitis the mucus is very thick and tenacious, which gives rise to a succession of large cracklings, as if large bubbles were slowly formed and burst; this is more marked when the current of air is feeble, as in emphysema of the lungs.

The *cavernous* rhoncus has a peculiar hollow and metallic sound, varying with the size of the cavity, with the quantity of fluid it contains, and with the density of its walls. If the cavity be small, it will resemble the mucus rhoncus; if the cavity be large, the sound will be proportionate to its size. In cases in which the cavity has cicatrized, no fluid being contained, the sound will resemble that produced by blowing in a bottle, and is termed the *amphoric* sound.

A simpler way to study the sounds produced in the bronchial tubes is, to designate them as *blowing* sounds, and divide them into dry and moist.

A *dry blowing* sound indicates *contraction* of the bronchial tubes, and *arrest* of secretion; as is its intensity, so are these pathological conditions. Necessarily their diagnostic value depends upon the sounds elicited by percussion; if there is dullness, bronchial irritation alone exists; if there is resonance, there is inflammation of the bronchiæ proportioned to the intensity of the sounds.

A *moist blowing* sound indicates the establishment of secretion, and its extent will be determined by the mucous gurgling. The degree of contraction, and difficulty of respiration from this, will be determined by the intensity of the blowing.

A *dull, moist blowing* sound will strike the ear at once with the impression of want of tone; of relaxation; a tumid mucus membrane; a feeble circulation; and an increased secretion, or deficient power to free the tubes from it.

In this direction we find the sounds having less and less of that quality that musicians call *timbre*—tone or resonance. It becomes dull, soggy, wavering, and strikes the ear at once, as being formed in a tube that had lost its elasticity, its smoothness, and its power of resisting the current of air.

On the application of the ear to the healthy chest when a person is speaking, a diffused buzzing is heard, except over the upper part of the sternum, over the larger bronchial tubes and trachea, between the scapula, where the voice is transmitted with some force, constituting natural *broncophony*. In disease, several modifications of vocal resonance occur. It may be diminished in intensity, or be entirely suppressed from the feeble conducting power of the substance of the lung, or intermediate substance, as we observe in vesicular emphysema and pneumothorax. Or it may be exaggerated broncophony. This exists whenever there is an unusual density of the pulmonary tissue situated between a bronchial tube and the wall of the thorax, rendering it a better conductor of sound. This happens in tuberculous solidification, and in the stage of hepatization in pneumonia.

By *pectoriloquy* we understand a state of vocal resonance, in which the voice appears to resound in a hollow space, and is transmitted as articulate words to the ear of the observer.

The presence of an excavation or dilated bronchus, whose condition permits free vibration is necessary for its production, and it is present, therefore, in tubercular caverns, and dilated bronchi. In conditions of the lung favorable to the production of broncophony, if there be effusion of fluid within the pleura, a tremulous, nasal and metallic tone, resembling the bleating of a goat will be heard. This is termed *ægophony*, and is audible over but a limited surface, and its position may alter with the position of the patient.

CORYZA.

SYMPTOMS.—This is simple, sub-acute inflammation of the mucous membrane of the nose, the result of cold; it may exist alone, or in connection with disease of more or less of the other respiratory passages. It commences with a "stuffing up of the head" with dull, heavy pain or aching; a feeling of dullness and debility, and sometimes pain in various parts of the body. In a day or two there is copious secretion from the nose; the secretions are arrested to some extent, there being dryness of the skin, constipation of the bowels, and scanty urine. It is a common form of bad cold.

If the remedy is carefully selected this may be done with much satisfaction. Aconite is a very important remedy, and relieves the depressed circulation quicker than any other. If the patient complains of frontal headache—a very common symptom—Rhus is added to it. Gelseminum meets those cases where the face is flushed and the head "aches all over." Belladonna, when the patient is dull, the mind works under difficulty, and there is dryness and fullness of the throat. Bryonia, if there is inclination to cough and chest pains My experience proves that remedies selected in this way give much better results than the old plan of diaphoretics, hot foot baths and associate means, or the more modern use of quinine. With heat and diaphoretics, the skin is left relaxed and patients take cold easily. With some people quinine acts very kindly, but with others there is an over nervous stimulation.

INFLUENZA.

EPIDEMIC CATARRH.

This disease has occurred as an epidemic many times in the history of medicine, and several times in this country. As regards its *cause*, we are entirely in the dark; it being supposed by some, that it was produced by long prevailing easterly or northerly winds, extremely variable and damp weather—upon telluric influences—upon contagion—upon alterations of the electricity of the air, etc. Thus, Copland remarks that "the seasons and the state of the weather, both antecedently and at the time of the outbreak of influenza, have had no share in its production. Whether appearing in spring, summer, autumn or winter; or occurring in mild and dry, or in cold and moist weather; or prevailing in cold, temperate, or warm countries, it has presented the same general features."

SYMPTOMS.—The disease usually commences with a well marked chill, lasting for two, three or four hours, followed by heat of skin, coryza, sneezing, fullness and tenderness of the eyes, soreness of the throat, hoarseness, cough, pain in the back and limbs, restlessness, and marked fever. The cough, for the first day or two, is usually dry, and attended with some soreness of the chest, slight dyspnœa, and hurried respiration; afterwards expectoration becomes abundant and easy; nausea, loss of appetite, vomiting, costiveness, with a white appearance of the tongue, are generally present. About the fourth or fifth day the symptoms become mitigated, secretion being established from the skin and kidneys; but the cough frequently continues, being severe and obstinate.

"The *complications*, or prominent affections of influenza, were chiefly, a peculiar inflammatory condition of the throat and pharynx, severe gastric disorder, bronchitis, a specific pneumonia, or pleuro-pneumonia, tubercular phthisis, a form of pleuritis, rheumatism, disease of the heart and pericardium, and severe adynamic and nervous fever." (Copland.) These complications gave the disease, in many cases, a degree of fatality, which would not have attended the simple affection.

TREATMENT.—We know there are epidemic remedies, as well as epidemic diseases, and this is one in which, in all probability, the epidemic remedy will be the means of cure. The proper sedative will furnish the basis of a good treatment, and to this may be added the epidemic remedy of the season. If we simply regarded the symptoms from the nose and head, we would give Rhus when the discharge was thin and acrid, the patient complaining of severe frontal pain; Bryonia when the discharge was glairy, and the patient complained of tensive pain, with flushing of right side of face, and pain in head from forehead to occiput; Baptisia when the discharge had a tinge of brown, and the mucous membrane was tumid and dusky; Phytolacca when the face was pallid, and the nose (outwardly) seemed swollen, with enlargement of the lymphatic glands; Sulphite of Soda if the mucous membrane was pallid, and the discharge abundant and dirty; Chlorate of Potash when the odor was putrescent; Belladonna where there was marked inclination to sleep, or dull pain in nose and head; Gelseminum when the face was flushed, and the eye bright and suffused. Local applications are best made with the spray apparatus, and are usually selected from the antiseptics, as Chlorate of Potash and Salicylic Acid.

OZÆNA.

By ozæna we understand a chronic, fœtid discharge from the nose, which may be simply a chronic inflammation of the mucous membrane (ozæna benigna), or dependent on caries of the bones. The cause of the disease is generally a neglected catarrh, though sometimes it is of syphilitic origin. The disease affects various parts of the cavity of the nose, sometimes extending to the frontal sinus; and even to the ethmoidal and sphenoidal cells. Again, it is confined to but a small surface, which is ulcerated, and sometimes the bone beneath is diseased.

SYMPTOMS.—In chronic inflammation of the mucous membrane of the nose, the patient complains of uneasy sensations, with frequent stuffing up in the nose, nasal voice, and a constant offensive discharge. In cases in which the upper part of the nose, and the frontal sinus is affected, it frequently gives rise to persistent headache, the pain being in the anterior

part of the head. In cases of caries of the bones, the discharge has that peculiar odor that always attends the breaking down of bone, and very frequently an examination determines the circumscribed locality of the disease.

TREATMENT.—We will scarcely find a case of ozæna that will not be benefitted by a general treatment, and the severer cases can not be cured without it. The treatment named under the head of *dyscrasias*, page 185, is appropriate here, and is decidedly preferable to the empirical use of alterative sirups. Stimulate the excretory apparatus to increased activity by the various means advised, so as to free the blood from any imperfect or broken down material, and increase the waste of tissue. And as the complement of this, increase digestion and nutrition by the use of the bitter tonics and restoratives.

If I were to make a simple prescription in this case, it would be: Compound Tincture of Corydalis, from ℥ij. to ℥iv. three times a day, after meals; and the Triple Phosphate of Quinia, Strychnia and Iron, ℥ss. to ℥j. three times a day. The character of the treatment being here indicated, the physician can select such remedies as are at his command.

For the chronic inflammation, we employ a variety of agents in the form of inhalation, injection, or snuff. An inhalation of Acetous Tincture of Sanguinaria, or that of Myrrh, of the vapor of Creosote, ten drops being dropped into a basin of hot water, the patient breathing the vapor, or of Balsam Tolu or Peru, the vapor being drawn into the mouth and passed out through the nose, answers a very good purpose.

In some cases we find it better to use remedies by injection; commencing first with warm salt water, so as to thoroughly cleanse the nose of the decomposing mucus; we follow with such medicated injections as seem demanded, as the Chlorate of Potash or Lime, Permanganate of Potash, Dilute Pyroligneous Acid, etc. The syringe used for this purpose should be the long silver tube closed at the extremity, and perforated at the sides with numerous minute holes.

In many cases, the following combination answers an admirable purpose:

℞ Podophyllin, gr. v.
Sesquicarbonate of Potash, gr. x7.
Sanguinarine, gr. ij.
Hydrastine, gr. x.
Ulmus Fulva, ℥i. M.

Finely pulverized, and used as a snuff two or three times a day. The quantities named are but the average proportions, and will have to be changed to meet each individual case.

In some of the milder cases when the disease is confined principally to the anterior parts of the nose, the medicated fluid may be snuffed up from the hollow of the hand. The Extract of Hamamelis (Pond's), a solution of Chlorate of Potash, etc, may be used in this way. Or, if the disease is of the posterior nares, and superior pharynx, the same remedies may be used as a gargle, and, by closing the mouth, forced up into the nose.

The treatment that has given me the best results, is the use of remedies with the air spray apparatus. The simple and cheap Essex apparatus will do, though there is a special one adapted to the nose. I have had most marked success with the Salicylic Acid grs. x, Borax grs x, to Water ℥iv, used twice a day. But we can use any remedy with it. Pond's Hamamelis, Grindelia, solution of Chlorinated Soda, Chlorate of Potash, etc. There is very much less danger of irritation from this than the nasal douche.

The apparatus in common use for this purpose is called Thudicum's douche, but it may be readily improvised by any physician. Six feet of rubber tubing used as a syphon, with a pint bottle as a container, does very well; the only difference being that suction is required by mouth to start the flow of fluid. The larger the tubing, and the higher the container above the patient, the greater the force of the current.

The principle upon which the hydrostatic method is based is, that in breathing through the mouth, the soft palate is thrown upwards so as to close the opening between the nose and mouth. If at any time whilst using the douche, the mouth be closed, the fluid at once pours down the throat.

The first object of the douche is to cleanse the parts, and expose the mucous membrane to the action of the medicated fluid. For this purpose we use salt water of the strength of ℥ss of salt to water Oj. It is found that salt water is less irritant than simple water, and much better to remove the secretions.

Following this we would use the medicated fluids indicated by the case. I like a solution of Chlorate of Potash for ordi-

nary cases, as well as anything I have employed; it may be made of the strength of from ℥j. to ℥ss. to water Oj. When the secretion is free, and very offensive, I prefer the Permanganate of Potash, usually in the strength of ℥j. to water Oj., though in very severe cases it may be used stronger, as in some it will require to be weaker. A solution of Carbolic Acid, grs. xx. to ℥ss. to water Oj. will sometimes answer well.

Of the vegetable remedies I prefer the Hamamelis, generally using it in the form of infusion. When the mucous membrane is livid, and markedly enfeebled, especially in syphilitic cases, and where there is destruction of tissue, I have obtained the best results from an infusion of equal parts of Alnus, Rumex and Cornus.

The hydrostatic douche should be used at least once per day, and occasionally twice, and a pint of the medicated fluid will be sufficient for one time.

If there is disease of the bones within reach, as of the turbinated bones, vomer, or anterior portions of the superior maxillary, the same local applications that would be indicated in caries of other parts, will be useful here. The Sesquicarbonate of Potash in powder or solution, and the Chloride of Zinc, are my favorite agents, the latter being used in a weak solution, say from gr. ij. to gr. x. to the ounce of water. In many of these cases a strictly tonic general treatment will have to be pursued, and as the patient's health improves, we notice improvement of the local disease.

CHRONIC PHARYNGITIS.

We notice this here, as it is so frequently associated with disease of the posterior nares, and, as a general rule, precedes chronic laryngitis. The patient complains of a frequent sense of "stuffing up" in the back and upper parts of the throat, which gives rise to a hawking and spitting up of a considerable amount of mucus. As it continues there is manifested a tendency to cough, which at last becomes confirmed, the disease having extended to the larynx. On examination we find the mucous membrane thickened, and laid together in folds, or looking relaxed and flabby, the mucous follicles enlarged, and the color changed from the smooth pink to a dusky red, livid or bluish-blanched appearance.

TREATMENT.—We treat this affection by local applications adapted to the condition of the mucous membrane.

℞ Hydrastis Canadensis, ʒj.
Tincture of Myrrh, ʒij.
Water, ʒxiij. M.

Use as a gargle. Or,

℞ Tincture of Capsicum, fʒij
Tannic Acid, ʒss.
Water, Oj. M

A decoction of the Cornus Florida, or this and the Quercus Rubra, or the Marsh Rosemary are very efficient agents. In many cases I have employed the Hamamelis with success. It may be used in the form of an infusion, the distilled extract, or of the ordinary fluid extract, one part to ten of water. The Nitrate of Silver, in solution of ℥ss to water ℥j, may be used in some cases as a stimulant, and should be applied with a probang. If there are any symptoms of the disease extending downward to the larynx, continuous counter-irritation to the sides of the throat should be immediately adopted.

Mr. Hilton has well remarked that sometimes the mucous membrane is in that condition, that it may be called irritable mucous membrane, and that these anodyne and sedative applications are much more successful than nitrate of silver. In a case of this kind, the local use of Hydrocyanic Acid freely diluted, and subsequently of chloroform, acted very beneficially.

In some of these cases we will find that the employment of remedies with a demulcent, allowing them to dissolve on the tongue, and swallowing slowly, answers an excellent purpose. We usually employ powdered Gum Arabic and sugar for this purpose, combining with it sedatives, narcotics, stimulants or astringents, as the case may demand. As an example of such use:—

℞ Alum, ʒss.,
Capsicum, gr. ij.,
Gum Arabic,
White Sugar, aa. ʒss. Dose grs. x.

The spray apparatus in any of its forms is an excellent means of medicating the throat, and with it we may employ any medicated solution. When the mucous membrane is swollen and tumid, with free secretion, we will find the Sulphurous Acid, properly diluted, an excellent remedy, but there is none that has given me the satisfaction of the Salicylic Acid with Borax.

In some stubborn cases, we find that the disease extends above the soft palate, and remedies used in the ordinary way do not reach it. Here we will have to employ a syringe, with a long curved tube, to pass up and behind the palate; this tube should have fine perforations at its point, and for a short distance on its side, so as to throw a spray in different directions. Such a tube comes with the "Universal Syringe."

TONSILITIS

Inflammation of the tonsils is a very peculiar disease, in that the tendency to it is hereditary in some families, and that, having once occurred, there is a continued predisposition to it, and it continues to recur, sometimes during the entire lifetime. It is also peculiar, in that an inflammation so active in form should be confined to a small gland, and not extend to adjacent structures.

CAUSES.—Tonsilitis occurs most frequently at the commencement or breaking up of winter, when the weather is very changeable. A slight cold, contracted at such times, will be followed by an attack

PATHOLOGY.—The tonsils are composed of an association of follicles, terminating on the free surface by twelve or fifteen ducts, through which the secretion is passed for the lubrication of the fauces. These follicles are bound together with a rather loose areolar tissue, and the whole is invested by a reticulated fibrous capsule, and covered externally by mucous membrane. The arrangement is such as to permit very great variations in size, without change of structure. Thus, in simple congestion, they may attain a size three or four times as large as in the normal state, and under inflammatory action with exudation, their bulk is still further increased. The looseness of the structure likewise permits organized exudative material to once or twice the usual size of the organ, without materially interfering with their function, as we see in protracted cases of tonsilitis.

SYMPTOMS.—Quinsy usually manifests itself first, by soreness and stiffness of the throat, with difficult deglutition, and more or less derangement of the digestive functions; occasionally it

is ushered in with a marked chill, followed by febrile reaction. There is always some fever, dryness and constriction of the skin, and general arrest of secretion. In a few hours the patient complains of pain, and a sensation as if some foreign body were present in the throat, with heat and constant desire to swallow. When fully developed, deglutition becomes so difficult and painful as to occasion extreme suffering, and in some cases it is impossible. A guttural cough, with frequent desire to remove the secretion from the throat; a hoarse and difficult respiration, and confused whispering and guttural articulation, or sometimes entire loss of voice, is observed. In the severer cases it becomes impossible for the patient to lie down, and in many, but little rest is obtained in consequence of the difficult respiration when the will is in abeyance. If we examine the throat in this disease, we will find the tonsils enlarged and reddened; sometimes so large as to entirely close the opening of the fauces.

An attack of quinsy continues for a variable length of time; usually from four to twenty days, and terminates sometimes by resolution, at others by suppuration. When it terminates the latter way, the gland rapidly enlarges; there is a dull throbbing pain or aching, and a yellowish color near where the pus points; usually it readily comes to the surface and discharges without assistance, but sometimes it is very slow and requires the lancet.

A condition of chronic inflammation and enlargement frequently continues, in those predisposed to the disease. The glands appear prominent on examination; the mucous follicles enlarged; the color a dusky red, with considerable tenderness. Associated with this, we frequently have a chronic irritation with determination of blood to the entire isthmus of the fauces, and elongation of the uvula, giving rise to a continuous cough, derangement of the general health, finally inducing serious disease of the respiratory apparatus.

DIAGNOSIS.—The diagnosis is very readily effected, as the symptoms pointing to disease of the throat are so prominent as to lead to its examination at once. Upon depressing the tongue one or both tonsils will be seen enlarged and reddened. Day by day we find the swelling increasing, until, if both tonsils are engaged in the disease, they have quite closed up

the isthmus of the fauces. The deep, throbbing pain in the part, greater difficulty of respiration and deglutition, with yellowish discoloration, give information of the establishment of suppuration.

PROGNOSIS.—Though these symptoms are sometimes very urgent, and the patient suffers extremely from a sense of impending suffocation, not one in a thousand will die of the disease. Yet it has been one peculiarly difficult to influence with remedies; and the radical cure of the disease, where there has been a predisposition to it, has been considered impossible, except by total ablation.

TREATMENT.—The use of aconite with the spray instrument is almost specific in the early stage of the disease. I usually employ the steam atomizer, but the Bergsen tubes operated with rubber bellows, or the Richardson apparatus in its many modified forms, will answer the purpose. With the steam atomizer I use it in the proportion of ℥j to water, ℥ij; with the air spray, ℥j to water, ℥iv. The spray is used as often as every four hours, for five minutes at a time, until relief is obtained. In many cases I have succeeded in arresting the disease with one application. It is well to have the patient spit out the aconite that accumulates in the mouth, as there will be too much to swallow.

When these instruments are not at hand, let the patient inhale the vapor of vinegar and water, and apply to the throat the Linamentum Stillingia on flannel. The internal remedy, in this case, will be Aconite alone, using it in the usual proportion, and repeating it every hour. There is no doubt about the specific action of the remedy, even when taken in these small doses, though it is not so certain as when used with the spray.

Penciling the tonsils with the strong tincture of Veratrum, will also exercise a marked influence on the inflammation, and will sometimes arrest it at once.

These means should be persisted in, and if they do not arrest the inflammation at once, they will frequently prevent suppuration. When they prove ineffectual, I am satisfied that there are no means which would have given better results, and we wait the result of suppurative action with patience. Much

relief is now given by the use of inhalations, and sometimes by hot fomentations applied to the throat. As a general rule, the abscess will open itself, and this we would always prefer. If it does not, and the symptoms of obstruction in the throat become alarming, we will have to lance the tonsils. This is not very easily done; but, by guarding the bistoury with the fingers, it may be accomplished without danger.

The treatment for the radical cure of the disease will vary in different cases. If the tonsils alone are affected, the general health being good, I think we may accomplish a cure in a young person. For this I rely principally upon the local application of persulphate of iron: at first, one part to three of glycerine, but increasing its strength as the treatment progresses, until it is used of full strength, if necessary. The continued use of the fluid extract of Hamamelis, applied to the tonsils once or twice daily, will also give good results. If there is disease of adjacent parts, the treatment advised in chronic pharyngitis will be used in addition.

When these means fail, we will have to take into consideration the propriety of excision. It is claimed by some, that the removal of the tonsils leads to tuberculosis of the lungs, and this claim is based upon considerable experience in sections of country where tonsilitis prevails. Why such a result should follow, I can not see.

The tonsils are removed with a *tonsilotome*, or guillotine, and is easily effected, and without risk. The important part of the operation is to include the whole of the tonsil in the ring of the instrument, so as to remove it when the knife is thrown forward. If not wholly removed, the disease may be reproduced, just as if nothing had been done. If there should be hemorrhage following the operation, pencil the part with persulphate of iron, or a saturated solution of alum.

ACUTE LARYNGITIS.

This disease may properly be divided into three forms: 1st, *catarrhal* laryngitis; 2d, *acute* laryngitis proper; and 3d, *asthenic* laryngitis. It occurs as a simple inflammation, confined strictly to the larynx, or associated with disease of other parts of the respiratory apparatus. The cause of laryngitis

is generally cold and sudden atmospheric changes, though it may be produced by the inhalation of irritant vapors, etc.

SYMPTOMS.—1st. In *catarrhal* laryngitis the disease is usually associated with catarrh, and characterized by the usual catarrhal symptoms. In addition, the patient complains of constriction and soreness of the larynx, hoarseness or partial loss of voice, which sinks to a whisper, and a hoarse cough, which is at first dry, but is attended with expectoration, as the disease progresses.

2d. *Acute* laryngitis proper is a most dangerous form of disease. It usually commences with a slight chill, soreness and stiffness of the throat, difficulty of swallowing, and sense of constriction and desire to clear the throat. Following the chill, febrile reaction comes up, and is quite intense, considering the extent of the inflammation. Then a dull pain is felt in the throat, the sense of constriction is markedly increased, and there is tenderness on pressure; the voice is harsh, hoarse, or stridulous, and there is a frequent dry short cough. If the throat is now examined, the fauces will be found red and tumid, and when the tongue is pressed down the epiglottis may be seen erect, swollen, and red. In the course of from twelve to twenty hours, the inflammation has markedly diminished the aperture of the glottis, the voice becomes small, piping, whispering, and soon suppressed. The breathing is difficult, inspiration being sibilous, shrill, prolonged and laborious, the larynx being forcibly drawn down on each attempt to inflate the lungs. The cough is stridulous and convulsive, and attended by attacks of spasm of the glottis, which threatens suffocation, the expectoration being scanty and viscid, and removed with difficulty. In the last stage of the disease, the patient exerts all his power in respiration, sitting upright and grasping objects in reach to bring into play the external inspiratory muscles. The countenance is pale and anxious, the lips livid, and the eyes almost start from their sockets, the extremities are cold, and covered with a clammy perspiration. Soon a low delirium or coma comes on, the pulse becomes more feeble and intermittent, imminent symptoms of asphyxia appear, and the patient rapidly sinks.

Asthenic laryngitis, or *œdema of the glottis*, is generally confined to the upper part of the larynx, the constriction being

caused by infiltration of the margins of the larynx and epiglottis. The disease commences with a continually increasing impediment to respiration, and a feeling of fullness and constriction, and continuous desire to clear the throat, as if caused by some foreign body; the voice becomes hoarse, croupal, then sharp, stridulous, whispering, and is then lost entirely; there is a hoarse, convulsive cough, with fits of suffocation, causing great agony. While inspiration is prolonged, stridulous and exceedingly difficult, expiration is comparatively easy. This feature is so marked as to be pathognomonic of the disease. There is no fever, but as the disease progresses the pulse becomes frequent, small and irregular. The difficulty of breathing increases; the fits of coughing and suffocation are more frequent; symptoms of asphyxia are very apparent, the cerebral functions are disturbed, and at last death ensues from inability to inflate the lungs.

DIAGNOSIS.—The diagnosis is readily made in these cases, from the peculiar character of the voice, cough, location of soreness and constriction, and extreme difficulty of breathing; in asthenic laryngitis, by the marked difficulty of inspiration and freedom of expiration.

PROGNOSIS.—The prognosis is favorable in the first form, and even in the second, if the treatment is prompt and active, but doubtful in the third.

POST-MORTEM EXAMINATION.—The mucous membrane of the larynx, in acute inflammation, is found red, congested and thickened, with slight sub-mucous infiltration in some cases. But in none is there sufficient closure of the opening to account for the death by asphyxia; we have, therefore, to attribute it in part to spasmodic or clonic contraction of the intrinsic muscles of the larynx. In asthenic laryngitis, the submucous cellular tissue of the under surface of the epiglottis, and margin of the glottis, and even as far down as the ventricle of the larynx, is infiltrated with serum, readily accounting for the difficult inspiration.

TREATMENT.—In catarrhal laryngitis, the treatment is simple. I direct frequent inhalations of the vapor of Water, until expectoration commences, giving, at the same time, equal parts of the Acetous Tinctures of Lobelia, Sanguinaria, and Simple

Syrup in moderate doses, every quarter or half hour, with the hot foot-bath, some warm diaphoretic, and the Stillingia Liniment applied to the throat.

In the acute affection, means to cause relaxation of the larynx are of the utmost importance, giving us time to arrest the inflammation. For this purpose, we employ cloths wrung out of hot water, frequently changed, and the additional use of equal parts of Oils of Lobelia and Stillingia, with just sufficient Alcohol to cut them. Dry cups, or the cups and scarificator may be employed with marked advantage, if properly used. In addition, inhalation of equal parts of Vinegar and Water, or either alone, is highly useful.

Internally, the most efficient remedies are the Acetous Tinctures of Lobelia and Sanguinaria, and Syrup, equal parts, given in teaspoonful doses every five or ten minutes. It should be employed so as to keep up continuous nausea, but not to produce vomiting, unless it be found that such nausea does not produce the general relaxation necessary, when the Compound Powder of Lobelia, in infusion, may be given so as to produce thorough and sufficiently continued emesis to accomplish the desired result.

Instead of this active treatment, we might rely upon the use of the small dose of Aconite alone, as in croup—the Stillingia Liniment being the external application.

Asthenic laryngitis is more difficult to manage, our principal resources being those that produce revulsion. Thus, we employ stimulant applications to the throat, with the dry cups, or, in lieu of this, the cups and sacrificator. The back, loins, hips and extremeties should be thoroughly rubbed with the Tincture of Capsicum, repeated as often as it seems necessary. Internally, a stimulant Hydragogue cathartic might be administered, and followed by Stimulants, Tonics, and the Chlorine salts. Inhalations of a slight stimulant character have proven advantageous, but further than this, treatment directed to the respiratory passages is worse than useless. It is stated, upon good authority, that in the early stage of the affection, a stimulant emetic of Lobelia, carried to its farthest limit, has cut short the disease at once, and I would be disposed to try it in a person naturally feeble, in preference to other modes of treatment

CHRONIC LARYNGITIS.

Chronic laryngitis may arise from an improperly treated catarrhal laryngitis, quite frequently from an extension of the chronic inflammation of the pharynx. Great and prolonged exercise of the voice, as in puplic speaking, singing, etc., is a prominent cause, Syphilis, also, not unfrequently affects the larynx, the disease being very persistent and intractable.

Ministers' Sore Throat.—The first form of chronic laryngeal disease is designated as Ministers' Sore Throat, and, as its name would indicate, is caused by the prolonged use of the vocal organs. It is not, however, confined to the ministry, but is met with in other public speakers and in singers, and less frequently among those who have had no special occasion for over-exercise of the organ.

This disease is not a true inflammation, at first, but rather an *irritable larynx;* the structures being in that condition that slight causes are sufficient to induce irritation and determination of blood. Continuing on, however, a true laryngitis is developed in time.

The first evidence of ministers' sore throat, is a sensation of irritation, with spasmodic contraction and cough on over-exertion of the vocal organs. As it progresses, this is more easily excited, and the person finds the voice becoming rough and harsh, and that he is losing control over it. At a further advanced stage, the voice is hoarse, at times sinking to a whisper, and the formation of words requires considerable effort; and finally, speaking in ordinary conversation is difficult and unpleasant, and public speaking or singing impossible.

Symptoms.—Chronic laryngitis usually comes on slowly and insidiously, the patient being hardly aware that he is suffering from a serious disease, until it is confirmed. The first symptoms are soreness of the throat when speaking, with constriction, slight alteration of the voice, cough, and expectoration, which comes on after slight exposure, or over-exertion of the larynx. These symptoms are ameliorated in a short time, and the patient thinks it is but a slight cold, from which he is recovering. As time advances, however, the attacks become more frequent, last longer and do not so nearly disappear. The disease being fully established, there is a constant uneasy

sensation in the region of the larynx, the voice is seriously altered, and there is a constantly annoying cough, with expectoration. The expectoration is at first scanty and mucus; but, as the disease advances, it is muco-puriform sanious, concreted into lumps, or consists of almost pure pus. Hemorrhage occurs in the latter stages, sometimes in very large quantity. If the throat is examined, we notice the evidence of chronic inflammation of the fauces, pharynx, epiglottis, and we reasonably suppose that the mucous membrane of the larynx corresponds in appearance; with the laryngoscope we are enabled to view the internal surface of the larynx, and determine its condition tolerably accurately.

A person suffering from "ministers' sore throat," or chronic laryngitis, is very subject to take cold, and thus every change in the weather, or slight exposure, is followed by an increase of the disease. A very important part of the treatment of every case, therefore, will be directed to obviate this.

The impairment of the general health is usually in direct ratio to the severity of the local affection. At the commencement, the patient complains simply of debility, with some failure of the digestive organs, and sometimes torpor of the secretions. When it has progressed for some months he is unable to attend to business; there is loss of flesh and strength; marked impairment of the digestive functions, and of excretion. Now, frequently the system becomes so depressed that tubercles are deposited in the lungs, the symptoms of phthisis are developed, and the disease runs a rapid course to a fatal termination.

DIAGNOSIS.—We diagnose chronic laryngitis by the unpleasant sensations in the region of the larynx, the cough and expectoration, the appearance of the throat, and the absence of physical signs of other disease of the respiratory apparatus.

PROGNOSIS.—Ministers' sore throat can be readily cured in the majority of cases, if the person will give the vocal organs rest; usually from four to twelve months will be required. The prognosis in confirmed laryngitis is not favorable, as but few have the patience necessary to persist in the use of remedies until a cure is affected. It can be cured, but it requires time and perserverance, otherwise the disease is as fatal as confirmed phthisis.

POST-MORTEM EXAMINATION.—The lesions revealed by the scalpel are various: sometimes there is simple thickening of the mucous membrane, with enlargement of the follicles; at others, there is superficial ulceration, or large, deep, ragged, and sloughy ulcers, sometimes invading, or even perforating the cartilages. The lungs and bronchii are variously affected, tubercnlosis being the most frequent condition.

TREATMENT.—The treatment of minister's sore throat is in part specific, and when the general health is but little impaired, but one or two remedies will be required. I prescribe in this case:—

℞ Tincture of Collinsonia,
Simple Sirup, aa. M.

A teaspoonful three or four times a day. If nutrition was somewhat impaired I would alternate with this:—

℞ Tincture of Nux Vomica, gtt. x.
Tincture of Muriate of Iron, ℥ss.
Glycerine, ℥jss.
Simple Sirup, ℥ij. M.

The patient is directed to use the cold vinegar pack to the throat on going to bed at night, using flannel cloths and wringing them quite dry; washing the neck and shoulders with cold water in the morning, drying with brisk friction. There is no other means so certain to prevent the continued taking cold as this free bathing with cold water, and it should be insisted upon as an indispensable part of the treatment.

In the treatment of chronic laryngitis there are two prominent indications; to relieve local irritation and give the larynx rest, and to improve general nutrition.

The patient must be impressed with the necessity of giving the organs rest, and hence, of so arranging his intercourse with others that there shall be no occasion for much talking. It is also well to show them that such conversation as is indispensable can be conducted in a low key with much greater comfort and with less exertion than any other. They should also understand clearly the necessity of controlling the cough by the influence of the will, for a cough is always a source of irritation, and must be kept in check by some means.

The remedies to relieve laryngeal irritation will vary in different cases. In cases where there is pharyngeal disease we will find that the use of those local remedies recommended for chronic pharyngitis will be among our most important means.

The gargle of Hamamelis is especially a favorite of mine, as it gives tone to the mucous structures, and relieves the tendency to stasis of blood. Stillingia is another excellent remedy in these cases, using it in the form of the Compound Tincture of the Oils of Stillingia, Cajeput and Lobelia; one drop on a lump of sugar every two or three hours, or a trituration of Oil of Stillingia with white sugar and Gum Arabic.

As a general rule, we will obtain the best results from remedies allowed to dissolve on the tongue and then swallowed slowly. The irritation seems to point in the fauces, and agents used in this way influence the parts from which the cough seems to arise. I will give a formula of each kind; narcotic, astringent and stimulant, and the practitioner will readily see how he can combine remedies to suit the particular case in hand:—

℞ Sulphate of Morphia, gr. j.
Chlorate of Potash 3j.
Powdered Gum Arabic,
White Sugar, aa. 3ij Divide in 20 parts.

℞ Alum, 3ss.,
Tincture of Aconite, gtts. v.
Powdered Gum Arabic,
White Sugar, aa. 3ij. Divide in 20 parts.

℞ Capsicum, gr. v.
Chlorate of Potash. 3j,
Gum Arabic (powder,) 3ij. Divide in 20 parts.

Where there is evidences of structural change in the larynx, the tissues being enfeebled, we will find the use of the spray apparatus of importance. In this way we employ solutions of Salycilic Acid, Permanganate of Potash, Sulphurous Acid, Iodine, and other remedies of like character. It is well to combine a narcotic with these to prevent irritation and quiet cough.

But in a large majority of cases we will find the use of the vinegar pack, cold water sponging, and Collinsonia, as named at first, will be all that is necessary, if the patient will give us his assistance and will persevere.

The *second* indication requires careful attention. It may be stated, as a general rule, that no chronic inflammation can be arrested, or structural change repaired, unless there is good blood and active nutrition. In chronic laryngitis there is a deterioration of the blood and an impaired nutrition which finally results in tuberculosis. In severe cases it is the same in kind as the first, differing only in degree, hence the great importance of a restorative treatment.

Fortunately we are able to select our general remedies so that we may obtain a favorable local influence. Thus the Collinsonia, which relieves laryngeal irritation, is also an excellent tonic; and a combination of Muriated Tincture of Iron with Glycerine is an excellent topical stimulant and demulcent, as well as one of the best forms of a restorative.

In some cases our patient will require the stronger tonics and restoratives; as the Triple Phosphate of Quinia, Strychnia and Iron. Cod Liver Oil, when kindly received by the stomach, will answer an excellent purpose where the patient is thin in flesh, and when there is an exalted evening temperature. In those cases where the tongue is coated in the morning, with gaseous distension of the stomach after eating, and sometimes fœtid eructations, I frequently make the following prescription:

℞ Podophyllin, grs. ij.
Hydrastine, grs. x.
Phosphate of Soda, ʒij. M.

Triturate thoroughly and divide in twenty parts, and give one three times a day.

With regard to the use of Nitrate of Silver in chronic laryngitis I am satisfied that it has done far more harm than good. In some cases it can be applied to the fauces and pharynx as a topical stimulant with advantage, and associated with other treatment, a cure will result. But that its application within the larynx by a probang is good treatment in any case, I deny. I am well satisfied that in ninety-nine out of a hundred cases, the application is not made to the larynx but to the pharynx and œsophagus. But fortunately for the sufferers from laryngitis the *raid* on the larynx with probang, *a la* Dr. Horace Green, has passed by, and will shortly be recollected as one of the periodical absurdites of medicine.

LARYNGOSCOPY.

As part of the paraphernalia of the doctor's office we find the *tongue depressor*, and as one of the means of diagnosis in laryngeal disease we see the patient placed before the window, the head thrown back, the tongue depressed, and the doctor, with his head obstructing the light, looking in. What does he see? Usually not much of anything, for his head is necessarily placed in such position as to obstruct the direct rays of light. If he had a strong light and a fair view of the parts, he would determine the condition of the *pillars of the fauces*, of

the *tonsils*, the *uvula* and *soft palate*, the *pharynx*, the *epiglottis* in part, and sometimes the opening into the larynx.

As these parts are contiguous, covered by the same mucous membrane, and to some extent supplied by the same vessels and nerves, we may expect that they will sympathize in disease. Hence, we not only inform ourselves with regard to parts above, and the relative importance of these lesions, but are also enabled to judge of the condition of the laryngeal structures by what we do see.

In making this examination, we desire a strong light—the direct rays of the sun, or a good lamp. Using the first, we seat the patient with his back to the window or door, in such position that the rays of light pass by the side of his head. Now, depressing his tongue, with a *toilet mirror* we catch the rays of light, and throw them into the throat. With such a volume of light, the parts are thoroughly illuminated, and so far as we can see, we may determine the slightest change of condition. In using a lamp, we set it by the side of the patient, on a level with and near his head, and use the mirror in the same way.

For years I have made examinations of the throat, of the ear, and vaginal examinations, in this way, and I am satisfied that it will be found far preferable to the ordinary method.

A *laryngoscope* is an instrument enabling the physician to look *into* the larynx. In this case, the direction of the light and of vision must be changed; hence a second mirror in the throat, held above the larynx in such manner as to throw the rays of light into it, and receive back the image, is necessary.

The simplest form of the apparatus is the *laryngeal mirror*, either of glass or polished steel, attached to a handle at a proper angle, a tongue depressor, and a hand reflector.

Placing the patient in proper position with his back to a strong sunlight, the head being thrown backward, on a rest, if possible, and the tongue depressor placed, and put in the patient's hand, we may carry the laryngeal mirror back of the fauces, with its face downward and forward, and with the other hand using the hand mirror, catch the rays of light and concentrate them on the mirror in the throat. Slight change in the position of the laryngeal mirror, will give the light the direction we wish, and the image will be well defined and satisfactory.

Previous to the examination, the laryngeal mirror should be placed in warm water, and its temperature raised to 100° or over; otherwise the moisture of the breath will condense upon it, and prevent the formation of the image. Laryngoscopy must be rapidly performed, for the structures of the throat are very sensitive, and do not tolerate the laryngeal mirror for any length of time.

Several styles of this instrument are manufactured, with more or less complications, but all are used with some difficulty, and require an education of eye and hand not easily attained. With this preliminary description, we may try to answer the question, What is the value of the laryngoscope in practice?

It enables us to examine the mucous membrane of the larynx, and to determine accurately its condition. We are thus enabled to select remedies with greater positiveness. We may determine the presence of ulceration and its character, of polypoid growths, and of changes in the vocal cords.

It is claimed that it is of great importance in enabling us to make local applications to the diseased structures; that, guided by it, we may touch an ulcer with nitric acid; with a pair of forceps, or a hair or wire noose, we may remove a polypus, etc. I doubt not this has been done, but I can not attain this degree of skill, and I feel confident that it will rarely be attained by any one. We must be satisfied, therefore, with its enabling us to make a clearer diagnosis.

APHONIA.

Aphonia, or loss of voice, may be either temporary, or permanent unless overcome by medicinal measures. In the first, the condition of the vocal cords is changed; in the second, a more permanent structural lesion of these exists, or paralysis of the nerves distributed to the intrinsic muscles of the larynx. Temporary aphonia, in a greater or less degree, is witnessed in acute or catarrhal laryngitis, and in croup, and in some cases of cold, in which it is the only indication of laryngeal affection. Permanent aphonia may result from thickening of the mucous membrane covering the vocal cords, from ulceration, or from change in the structure of the cords themselves, the result of inflammation. Or, as before stated, it may depend upon paral-

ysis of the intrinsic muscles of the larynx, caused by inflammation, excessive exertion of the vocal organs, excessive emotional excitement, or from lesion of the brain, or of the nerves passing to the larynx.

SYMPTOMS.—In the first class of cases, the voice sinks to a whisper, and there are prominent symptoms of inflammatory disease of the larynx. In some of these cases, as has been determined by the laryngoscope, the inflammation is confined entirely to the vocal cords. In the second, if produced from inflammation, the voice is gradually lost, and from the persistent cough, and mucus or muco-purulent expectoration, we are satisfied as to the change of structure about the ventricle of the larynx. In cases of paralysis of the larynx, the loss of voice may have been sudden or gradual, and marked by inflammation or otherwise.

DIAGNOSIS.—A very important point to determine in this affection is the producing and continuing cause; the loss of voice is apparent to all. Having ascertained all the facts in relation to its commencement, we can readily determine whether inflammation has existed or not. If cough exists, if there is expectoration, with tenderness on pressure over the thyroid cartilage, without bronchitis, we are satisfied that the inflammation continues in a chronic form. If the laryngoscope is used, the structural lesions can be accurately analyzed. If there is neither cough nor expectoration, nor soreness on pressure over the larynx, we may judge it to be paralytic. It must not be forgotten that the larynx is governed to a considerable extent by the *reflex* system of nerves, and a temporary aphonia may be the result of disease of other portions of the body, as in cases of hysteria.

PROGNOSIS.—It will be evident from the above that the prognosis will be dependent upon the cause and the persistence of the affection. In a large majority of cases the voice can be restored.

TREATMENT.—In the first class of cases we find but little difficulty in the treatment, as with the disappearance of the inflammation the voice is restored. In addition to the other means named, I have employed the Compound Tincture of Oils of

Lobelia and Stillingia as an external application, and as an inhalation, with marked advantage. As an inhalation, I direct that a coarse, open sponge be wrung out of hot water, and the Tincture, in small quantity, being dropped on it, it is held to the mouth, and the breath drawn through it. This will be found an efficient plan in using remedies in laryngitis. Counter-irritation seems to be productive of little benefit, but if the case is acute, cups are used with advantage. In the treatment of laryngitis with aphonia, the treatment should be prompt and thorough, as the ventricle of the larynx, which is now ascertained to be affected, being the smallest part, may be speedily so closed as to arrest respiration.

In chronic cases, arising from inflammation of the larynx, the treatment proper for the laryngitis should be adopted. It is in these cases especially, that stimulant applications directly to the parts affected, have been found beneficial. The Nitrate of Silver in solution is generally relied upon, but, from the difficulty in its use, is not generally applicable. The inhalations recommended under the head of chronic laryngitis are most applicable in these cases, with counter-irritation externally, if there is much irritation, and stimulant applications if there is atony

In aphonia from paralysis, stimulant inhalations are sometimes very efficient, as for instance:

℞ Oil of Cajeput,
Oil of Stillingia, aa., ʒj.
Alcohol, ʒij. M.

To be used with the sponge as recommended above. The Oils of Sassafras and Hemlock, with Alcohol, in the same proportions, is also good, as is also the Vinegar of Sanguinaria, Tincture of Myrrh, Balsam of Tolu, etc. Stimulant applications externally, in the milder cases, are effectual; a tincture of any of the essential oils may be employed, but I prefer

℞ Oil of Sassafras,
Oil of Cajeput,
Oil of Stillingia, aa., ʒj.
Alcohol, ʒiij. M.

Apply freely and frequently. Electricity in the form of the Electro-magnetic or Galvanic current, passed through the larynx, and from the occiput downwards through it, is frequently a great aid to the treatment. Internally, the Extract of Nux Vomica or Strychnia, or, in some cases, Belladonna or Ergot may be beneficially used.

ACUTE BRONCHITIS.

Acute bronchitis may be divided into three varieties: First, common catarrhal bronchitis; second, sthenic bronchitis; third, asthenic bronchitis. The first of these has sometimes been denominated cold in the chest, the inflammation being subacute as in common catarrh. In the second the inflammation is active, and the disease consequently severe. The third is inflammation of an asthenic character, and occurs in persons of feeble vitality, or where there is especial loss of tone in the respiratory passages.

SYMPTOMS OF CATARRHAL BRONCHITIS.—This affection commences as a common cold, the patient feels dull and languid, frequent chilly sensations alternated with flushes of heat, increased secretion from the nose, dry skin, constipation of the bowels, and headache. In a short time the patient complains of a sense of dryness and roughness, and makes frequent attempts to clear the throat. A hard, dry cough, more or less hoarse, is soon developed, and seems to be rendered much worse by tickling in the fauces. The voice is frequently hoarse; there is a sense of tightness and constriction of the thorax, with slight pain or soreness in coughing or drawing a long breath. In some cases the febrile reaction is quite marked for the first two or three days. By the second or third day, the patient commences to expectorate a thin glairy fluid, which, rising to the glottis, greatly increases the desire to cough. By the fourth or fifth day the secretion has increased in quantity, is yellowish and opaque, and is raised with greater freedom. The constitutional symptoms now disappear, though the cough may continue for several days, and the patient soon recovers.

SYMPTOMS OF STHENIC BRONCHITIS.—Sthenic bronchitis is frequently preceded for a short time by coryza, oppression of the chest, languor, listlessness, arrest of the secretions, etc. In a short time marked chills or rigors are noticed, sometimes the chilly sensation will continue for twelve or twenty-four hours, not very severe, but annoying to the patient. The chill is followed by fever, generally remittent in character, being the highest in the afternoon and evening; the skin is hot, dry and husky, the pulse frequent and hard, the mouth dry, tongue

coated white and contracted, bowels constipated, and urine scanty and high colored. With the first appearance of febrile reaction a hard, dry and deep cough makes its appearance, the respiration becomes laborious, and there is dyspnœa and oppression of the chest. Generally within the first twenty-four hours, a dull pain is experienced on coughing.

About the third day we find the cough violent and harassing, it is still dry and productive of pain; the thorax seems sore as if bruised, and respiration is more difficult; the pulse is more frequent, and the secretions still farther arrested. The tongue is now coated and foul, and the appetite entirely gone; the patient is restless and uneasy, and sleeps poorly at night on account of the cough and difficult respiration. If we examine the thorax during this stage of the disease, we will find that the respiratory murmur is masked by a dry sound developed in the bronchial tubes, the result of inflammation: this sound approximates that produced by blowing through a dry tube, and is termed the *sibilant* rhoncus, or whistling respiration. The extent of the thorax over which this sound is heard, determines the extent of the bronchitis. We distinguish it from the bronchial sound produced by consolidation of the lungs, by percussion, which gives normal resonance.

Expectoration commences from the third to the sixth day. At first it is a clear, transparent mucosity, secreted in small quantity, and raised with difficulty. In a day or two it is a tough glairy mucus, resembling white of egg, and in most cases streaked with blood. As a general rule, it may be stated, that the greater its tenacity, the more intense the inflammation of the mucous membrane secreting it. This mucus is expectorated with difficulty; it accumulates, gives rise to cough, which is much protracted, lasting sometimes for minutes before the adhesive mucus gives way. The physical signs have not yet changed materially, though the sibilant rhoncus has become modified, and as mucus accumulates previous to coughing, is changed to a mucous sound. The febrile symptoms are still intense, and the difficulty of respiration, and oppression of the chest are great.

From the fifth to the eighth day a marked change is noticed in the mucus expectorated; it now contains opaque, yellowish, greenish, or white masses, suspended in the glairy mucus. These increase in quantity as the disease progresses, until the

entire expectoration possesses these properties. We now notice a marked change in the physical signs, the sounds being moist, and are termed *mucous rhonci.* With this change in the expectoration, the fever gradually abates, the secretions are restored, the appetite returns, the patient rests at night, the cough not being so troublesome, and the breathing becomes easy. The amendment continuing, by the eighth to the twelfth day the patient is convalescent. This may be said to be the natural course of the disease; but these changes can be very much accelerated by medicines, and the disease made to run a much shorter course.

Sthenic bronchitis does not always terminate thus favorably. Occasionally it is noticed that, about the fifth or eighth day, when improvement should have commenced, the respiration becomes laborious, the patient complains of great oppression of the chest, wants his shoulders propped up, and his arms out to bring into play the external inspiratory muscles. The system now begins to exhibit the evidences of imperfect aeration of the blood, in the purplish color of the lips and tongue, and the livid paleness of the surface. The expression of the countenance is anxious and distressed; delirium comes on, at first partial, at last complete; the extremities are cold; at last the entire surface is cool, and bathed with a cold, clammy perspiration, and the patient dies asphyxiated.

DIAGNOSIS.—The diagnosis in this disease is not difficult. The marked fever and arrest of secretion, determines an acute inflammation; the cough, oppression in the chest, and dull, obtuse pain, that the respiratory organs are affected; the sibilant, followed by the mucous rhoncus, with resonance on percussion, that it is confined to the bronchial tubes. The stage of the disease is determined by the expectoration, rhoncus, and the general symptoms.

SYMPTOMS OF ASTHENIC BRONCHITIS.—This is the *peripneumonia notha* of authors, and generally occurs in very young or old persons, or in those of exhausted constitution, or who have been liable to coughs with profuse watery expectoration. It usually commences with symptoms of cold and oppression in the chest, with slight febrile reaction. The cough is severe, occurring in paroxysms; the breathing is oppressed, laborious and wheezing; the expectoration, scanty at first, soon becomes

abundant, thin and frothy; the pulse is quick, small and irregular; the heat of the surface but little if any increased, the extremities generally being cool; the tongue is loaded with a foul, dirty mucus, the appetite is gone, and the bowels, constipated at first, become irregular as the disease advances. As the disease becomes more intense, the countenance is pale and anxious, there are exacerbating fits of dyspnœa, in which it seems almost impossible for the patient to breathe, and if the patient attempts to take a full breath to relieve this, or changes his position, a severe fit of coughing is brought on, sometimes terminating in vomiting, which gives temporary relief. If the case terminates fatally, the tongue becomes livid, the face dusky, the patient can not lie down, and if he sleeps it is but for a few moments, and wakes threatened with impending suffocation; delirium sets in, with cold, clammy perspiration, and the system is soon exhausted.

In weak and poorly nourished children, this disease is of frequent occurrence. At first it is noticed that the little patient has a protracted chill, followed by febrile exacerbation. The fever is higher in the afternoon, but becomes less and less marked as the disease advances. Respiration is quick and wheezing, the pulse frequent and full, though soft and easily compressed. The cough is persistent, deep and hollow; the expectoration, at first a viscid mucus, becomes, as the disease advances, yellowish, greenish and opaque. Dyspnœa is marked when the disease is fully developed, and coming on in paroxysms, it is followed by a long harassing cough, which frequently terminates in vomiting, giving relief for the time being. The disease sometimes continues for days, or even weeks, terminating favorably; or the dyspnœa becoming more intense, we observe symptoms of asphyxia rapidly increasing, and the child dies of apnœa.

DIAGNOSIS.—We form our diagnosis in this affection, by the low grade of febrile reaction, marked derangement of function, and prostration, that the inflammation is asthenic; by the cough and difficulty of respiration, that the respiratory organs are the seat of the disease, and by the presence of the mucous rhoncus and resonance on percussion, that the bronchial tubes are the parts involved.

PROGNOSIS.—When the disease is mild, a favorable prognosis may be given, but when severe, it is an exceedingly dangerous affection, and our prognosis must be guarded.

Though a severe disease, we do not look upon it as a fatal one, yet occasionally, from its intensity, it becomes difficult to manage. If secretion commences, becomes opaque, easily expectorated, with an abatement of the fever, the case is progressing well; but if symptoms of imperfect depuration of the blood are developed, with delirium, the case is a grave one. During the disease, if the sputa changes from an opaque to a glairy white mucus, we may be satisfied that the inflammation is redeveloped in its original intensity.

POST-MORTEM EXAMINATION.—If a patient suffering from acute bronchitis should die of some other affection, we would find the bronchial mucous membrane thickened and red, and bathed with the secretion expectorated previous to death. When the disease terminates fatally itself, the mucous membrane has been found red and thickened, and affected throughout the lung, and the bronchial tube more or less choked up with accumulated mucus.

TREATMENT.—In bronchitis, as in other diseases, we find that remedies are to be selected by the indications which present, and not because we have named the disease "bronchitis." Hardly two cases will require just the same treatment, and yet there is a certain resemblance that points out some of the principal means.

Evidently sedation is a first object. We wish to control the circulation and bring down the temperature. As is the frequency of the pulse so will be the increase of temperature, and as are these so will be the severity of the inflammatory process and the tendency to destructive changes. Not only so, but as is the pulse and temperature so will be the arrest of secretion, the arrest of the constructive processes, loss of appetite, power of digestion, and wrongs of innervation.

I prefer remedies that first influence the circulation—reducing the frequency of the pulse rather than the antipyretics, which first influence heat-making– the circulation being secondarily affected. Thus I select Veratrum and Aconite rather than Antifebrine and Antipyrene. Of course my ex-

perience is with the first, and I have to take the recorded experience of others as to the second. There is room for an honest difference of opinion, and I will endeavor to point out fairly the cases in which the antipyretics may be preferred. In all things the life of the patient is the first consideration, and if medicines are found, only occasionally to be dangerous, they must be handled with care.

Veratrum is the remedy when the pulse is full and strong. There can be no doubt of its kindly action in the small dose, and it would rarely prove fatal if given to emesis. Still, the small dose, frequently repeated, has the sanction of a large experience. The effect gradually obtained is better maintained, for, as has been shown, a rapid reduction of the frequency of the pulse from 110 or 126 to 60 beats per minute may cause an intolerance of the drug which will force its suspension. I give it with water ℞ Tinct. Veratrum gtt. x to gtt. xx, Water ℥iv; a teaspoonful every hour. Other remedies, not antagonistic in action, may be added; and even some, like Nux, with an opposite action, act most kindly with it when they are indicated.

Aconite is the remedy when the pulse is small and frequent. Age does not make any difference in the selection of the remedy. Yet we are in the habit of saying "Aconite is the childs sedative;" for the child has the small, frequent pulse. ℞ Tinct. Aconite gtt. v. to gtt. x, Water ℥iv; a teaspoonful every hour.

Bryonia is a remedy frequently indicated by chest pains, and pain and soreness when coughing. It can be added to the sedative mixture in the proportion of gtts. v. x to xx.

Lobelia is indicated by fullness and oppression of the chest, and is added to the sedative in the proportion of gtts. x to ʒi.

Eupatorium Per. is indicated by the full pulse, oppressed respiration, and tendency to perspiration, even when the temperature is high, add to the solution gtts. v. to xx.

Sanguinaria is indicated by continuous irritation of throat which causes cough. The nitrate is added to water in the proportion of one to four grains to the four ounces of water, and given alternately with the sedative.

Sticta is indicated by pain in the neck or shoulders, extending to back of head. It may be added to the sedative.

Ipecac is useful when there is an extension towards the lung tissues, as marked by the smaller *rales*.

Gelseminum, *Rhus* and *Belladonna*, have their usual indications upon the nervous system, and will be found excellent remedies.

The reader is referred to a study of coughs and its remedies, page 322 to 329, to save repetition in the selection of remedies. The cough should be controlled, not stopped. And it must be remembered that whilst secretion is necessary, we do not wish the profuse expectoration that exhausts the life of the tissues, and sometimes leaves irreparable troubles.

The group of *antiseptics* is frequently needed in severe cases. We may not see such marked symptoms as to cause us to apply the name "typhoid," but we remember that the opposite process is found by some slight septic condition of the blood. The early use of Sulphite of Soda, Sulphurous Acid, Muriatic Acid, Babtisia or Chlorate of Potassa, as indicated, may save a very great deal of trouble. (See page 110.)

Means to establish secretion from skin, kidneys and bowels, must not be forgotten. In the older practice of Eclectics they stood among the first, and were sometimes very successful. The spirit vapor bath, with large drinks of some simple diaphoretic infusion, or a nauseant, or the diaphoretic powder, or the compound tincture of Virginia snake root, was used at the commencement of the disease to profuse diaphoresis. These have been replaced by the direct sedatives and associated remedies. But with a scanty high-colored urine we still find it necessary to employ diuretics as of old. Minute doses of Apis, followed by a solution of Acetate of Potash, will be found good. There is the old "bilious" case which requires podophyllin; and sometimes the shortest way to the relief of bronchial irritation and cough is through purgatives. I am glad to say such cases are rare.

We do not forget that in many sections of country the disease has the element of periodicity, which must be promptly met as soon as the sedatives have control of pulse or temperature. Quinine is the remedy we depend upon, and, as in intermittent and remittent fever, the quantity will be gr. x to gr. xv. during the delirium of the fever. So marked is

this feature of the disease in some cases, that the antiperiodic dose of quinine proves abortive.

Whilst we depend mostly upon internal remedies, external applications are not to be neglected. So satisfactory will be their action some seasons, that the physician will prefer them rather than internal treatment. My favorite, and the favorite of most Eclectic physicians, is the cloth spread with lard and dusted with the *powder of lobelia and capsicum* (emetic powder.) Its size is proportioned to the intensity of the disease, and it is changed two, three, or four times in the day, There are cases when the hot fomentation does admirably, and after its use for first relief, then the compound powder of Lobelia is used. In some rare cases the mush jacket may be used the first and second day.

In the *asthenic* bronchitis of children, I value this local application of Lobelia above other means, and assisted by minute doses of Lobelia with Aconite, the respiratory apparatus is soon relieved.

In some cases much relief is given by the inhalation of hot vapors. In all, the air of the room should be kept moist.

Much depends upon nursing. The patient must be kept quiet and *warm*. A sudden chill is bad, and may prove fatal ; and we caution against draughts or allowing the bedcovers to be displaced. The food should be the same as in the severer fevers and pneumonia. Fluid and *hot* is the rule, and hot milk or the gruels the articles thought of first.

There is a case of bronchitis in which the acute symptoms passing away, the patient is left into an asthmatic difficulty in breathing. This persists, and if not properly met it goes on to a confirmed *stenosis*, from which the patient does not recover, though he may live for months and even years. The remedy I have found most useful in this case is the *Æsculus Glabra*. Ten drops is added to the half glass of water, and a teaspoonful given every two to four hours.

As convalescence is established, tonics and restoratives come in as parts of a good treatment. As a stimulant to the nervous system and for the appetite, the triple Phosphate of Quinine, Strychnia and Iron stands first. The dose need not be large, a half teaspoonful in water two or three times a day. When the mucus membranes are dark-colored, the Tincture of Muriate of Iron with syrup or glycerine, is good.

CHRONIC BRONCHITIS.

Chronic inflammation of the bronchial mucous membrane is of frequent occurrence, and may result from many causes. A badly treated acute bronchitis may terminate in the chronic form, or an inflammation of the lungs may set up a subacute bronchitis, which will continue after the original disease has subsided. The most frequent cause is, doubtless, the neglect of catarrhal bronchitis; the acute symptoms ceasing, the patient pays but little attention to the cough, and the persistent chronic disease is the result. In many cases the progress of the disease is slow and insidious, in others quite rapid. In the first case, the patient is troubled with cough, during the winter and spring months, whenever exposed to the cold; but this passes away with the return of warm weather. The next winter he seems to catch cold easier, and the cough is more persistent, and does not entirely disappear during the summer. With the return of cold, changeable weather, all the symptoms are aggravated, and the general health suffers, the disease being permanent. Thus one, two, or more years may be required for its development; in other cases, it follows "the cold in the chest," or the acute attack.

SYMPTOMS.—In chronic bronchitis we have both local and general symptoms. Cough seems to be at once the most characteristic, as well as troublesome feature. The cough is persistent and annoying, generally of a deep bronchial character; but sometimes short and hacking, at others asthmatic. It is dry or moist, depending upon the amount of secretion from the bronchial mucous membrane. Sometimes it is attended by a dull, heavy, aching pain, or sense of soreness, on coughing. At others the chest is entirely free from pain.

Expectoration varies greatly as regards quantity and appearance. Sometimes it is very scanty, the cough being dry and harsh; at others there does not seem to be any great accumulation in the bronchial tubes, though expectoration, in moderate quantity, attends each paroxysm or cough; lastly, we observe cases in which expectoration is profuse, the patient being obliged to cough to remove the accumulation from the chest. We thus divide chronic bronchitis into two marked varieties: *bronchitis with deficient secretion* and *bronchitis with*

profuse secretion. The material expectorated varies from a thin, transparent, adhesive mucus, to a yellowish or greenish opaque mucus or muco-pus, of a more or less offensive character

The physical signs are marked; on applying the ear to the chest, we find that the normal respiratory sounds are masked by those developed in the bronchial tubes. It will be recollected that bronchial sounds are only heard in the normal condition of the respiratory organs, over the larger bronchial tubes between the scapula, and that their development over other portions of the thorax is indicative of disease. To determine whether it is the result of solidification of the lungs, or of morbid changes in the bronchial tubes, we resort to percussion; if there is dullness, it depends, at least to considerable extent, upon solidification, if there is normal resonance, of course the cause must exist in the bronchial tubes alone. The character of the sound determines, to some extent, the condition of the mucous membrane; thus, a *sibilant* rhoncus being heard, we know there is deficient secretion, and that the dryness is marked by the degree of whistling in the respiration; if a *mucous* rhoncus is heard, that secretion is established, and is in proportion to the amount of gurgling; a deep gurgling or flapping sound, that there is great relaxation and atony of the mucous membrane.

The general symptoms vary greatly in different cases; sometimes the disease continues for years, and seems to exert but little influence upon the health of the patient, but sooner or later the patient loses flesh and strength, and the various functions are disordered. Generally, when chronic bronchitis is established, it is observed that the patient becomes anæmic, the appetite is impaired, the circulation deranged, and the secretions unfavorably affected. The disease progressing, the loss of strength and flesh is marked, the patient is unable to follow his usual employment; his spirits are depressed, and he gradually sinks; or tubercles of the lungs are developed, and he dies of consumption.

DIAGNOSIS—We have to diagnose chronic bronchitis from chronic laryngitis and phthisis. In the first we have the well marked bronchial sounds, either sibilant or mucous, developed over all, or a considerable part of the thorax; in the second, no such sound exists, but instead we have the morbid sensa-

tions, soreness and pain confined to the larynx; in the third, the bronchial sounds are absent, or, if present, are accompanied with dullness on percussion, especially marked over the upper lobes of the lungs.

PROGNOSIS.—The prognosis may be considered favorable unless the disease has progressed too long, or there is profuse secretion, with great relaxation and debility; in this case our prognosis should be guarded.

POST-MORTEM EXAMINATION.—Usually the mucous membrane presents a livid, violet colored or brownish tint, instead of the light redness of the acute disease. The other changes are, thickening of the mucous membrane, ulceration, softening and dilatation of the bronchi. The changes in other portions of the body will be dependent upon the complications preceding death.

TREATMENT.—The treatment of chronic bronchitis may be properly divided into general and local, and as much importance attaches to the one as the other. Of course, the general treatment will have to be varied according to the complications; but the following points deserve especial attention. The appetite and digestion being frequently impaired, it is necessary to administer such mild tonics as improve the tone of the digestive apparatus, and at the same time improve the quality of the blood. Frequently these can be selected with reference to their action, either direct or indirect, on the pulmonary mucous membrane. The bitter tonics, the mineral acids, Hypophosphites and Nux Vomica, are found important curative means. The excretions must be restored, and to accomplish this the milder agents are of great utility. The bowels being constipated, mild laxatives are indicated. The secretions of the kidneys affected, those agents termed alteratives, that are known to facilitate this secretion, are the best adapted. The skin demands our especial attention, from the intimate sympathy existing between this membrane and the mucous lining of the body. If it is dry and harsh, the use of the alkaline sponge-bath, with brisk friction, seems to be of much benefit; if there is imperfect capillary circulation, with coldness of the extremities, the Capsicum bath is important; and if there is much relaxation, the addition of an infusion of

some bitter tonic, or astringent. Iron is useful in cases of anæmia or imperfect nutrition; the Hypophosphites, Sulphur, and Quinine, when there is deficient innervation; and Nux Vomica, or other permanent stimulants, when the patient exhibits an apathy not accounted for by the symptoms of the disease.

Whilst a judicious selection of expectorant remedies may relieve the cough, check the inflammatory process and promote the process of repair, I think better results may be obtained by the selection of *specific* remedies. Nauseant expectorants relieve cough and bronchial hyperæmia by establishing expectoration. But as this is not nature's method, the mucus membrane may be exhausted by too profuse secretion. Stimulant expectorants check secretion, and if the action stops at the right point they are good. The addition of narcotics to the expectorant mixtures and compounds give temporary relief, and many times a false confidence in the remedy employed. If used, they should only be employed for a temporary purpose—the relief of irritation and cough—and then replaced with other means.

Stillingia in the form of the Compound Tincture of Oils of Lobelia, Stillingia and Cajeput, have been a very good remedy for the relief of bronchial irritation and cough. One drop on sugar is the dose.

Lycopus is a most excellent remedy for the relief of cough in bronchitis. It is indicated by the frequent pulse, and more or less difficult respiration. One drop on sugar every three hours is the best method of administration.

Veratrum is a remedy where the pulse is frequent and hard.

Arsenic is added to Veratrum where the pulse is frequent and soft, and the skin and tissues relaxed.

Bryonia is one of our most frequently indicated remedies. Pain in the chest, and pain caused by coughing, will be the indications.

Sticta will be a remedy where there is pain in the back of neck and shoulders, extending to occipet.

Sanguinaria is indicated by a sense of roughness and "rasping" in the the throat. The "Nitrate of Sanguinaria" is added to syrup in the properties of one grain to four ounces, and given in teaspoonful doses.

Iris proves a good remedy where there is enlarged thyroid, and if the patient has suffered from chronic skin disease.

Sulphide of Calcium in trituration is a good remedy where there is purulent expectoration or muco-pus.

Cod-liver Oil is useful where there is purulent expectoration, if there is lymphatic enlargement, pallid and full tissues.

The tissue remedies of Schussler have not given me good results, except *Ferri Phos.*, where the inflammation was somewhat active.

Belladonna exerts a good influence where the throat feels dry, husky or irritated, and in cases where the patient is dull and sleepy.

Rhus has its usual indication—*burning* pain in the chest.

Æsculus Glabra is one of the best remedies I have ever employed where there are asthmatic symptoms with the bronchitis. Ten to twenty drops to water four ounces, a teacupful every three or four hours.

Drosera must not be forgotten as a possible remedy where the cough is paroxysmal, or severe intense irritation like the cough of measles.

Collinsonia proves a fine remedy where the cough seems due to laryngeal irritation, and a feeling as if there was some irritant in upper respiratory tubes.

Agrimonia is sometimes a very useful remedy. The patient complains of pain under the floating ribs, sometimes extending to the kidneys. The dose will be from one to five drops of the tincture.

Counter-irritation is useful in chronic bronchitis, and sometimes curative. The old *irritating plaster*, of small size, applied over points of pain or sore places, has given great satisfaction. In place of this, the small squares of *Thapsia* plaster may be used.

Sometimes the cough and irritation is markedly relieved by the larded cloths dusted with *Lobelia* and *Capsicum* (comp. powder), and in some good cures I am satisfied that this was the principal means.

To check the secretion, I am using a new class of agents: they are, the Collinsonia, Achillea, Ptelea, Trillium, Lycopus, Polygonum, and Euonymus, usually in the form of tinctures. The first three of these I have found very efficient, acting as gentle tonics and stimulants, improving the appetite and

digestion, restoring the excretions, and, at the same time, relieving the irritation of the pulmonary mucus membrane. The Trillium is a fine agent when the secretion is excessive; the Polygonum when there is torpid circulation of blood, and dryness of the skin, and the Euonymus in cases where hectic fever and night sweats are developed. The balsamic expectorants are employed in many combinations.

℞ Balsam of Fir,
Balsam of Tolu,
Balsam of Peru, aa, ʒj.
Oil of Anise, ʒss.
Opium, ʒj.
Honey, ʒij.
Rum (Best Jamaica), Oj. M.

Shake well, and take one or two teaspoonfuls every three or four hours. Balsam of Copaiba has been employed with advantage.

℞ Copaiba, ʒj.
Balsam of Fir,
Sweet Spirits of Nitre,
Honey, aa, ʒss. M.

Dose, a teaspoonful three or four times a day, in Simple Syrup, or in mucilage of Gum Arabic.

Stimulant inhalations are sometimes of benefit in these cases; among the agents used for this purpose, may be named the expectorant gum resins, Tar, Creosote, Myrrh, Ammonia, Iodine, Chlorine, Bromine, infusion of Podophyllum, Iris, Sanguinaria, Xanthoxylum, etc. Carbolic Acid has been employed of late years as an inhalation in this case, with great advantage. It may be used with the spray apparatus, or a solution may be added to hot water, in a bottle or other container, and inhaled from this. Iodine is used in the same way. Care must be used in the employment of these agents, that they do not give rise to irritation, and that they are so largely mixed with air, as not to interfere with respiration.

PNEUMONIA.

Inflammation of the parenchyma of the lungs is a disease of frequent occurrence, and involving, as it does, so important a structure, its effect upon the general system is proportionately severe. The extent of the inflammation varies in different cases; sometimes but a portion of one lung is involved, at others, one entire lung, and lastly, both lungs may be involved

in the disease. If the inflammation is confined to one lung, it is termed *single*; if it affects both, *double* pneumonia, the last being a very severe disease.

Pneumonia is, in a large majority of cases, produced by cold; in the exceptional cases by irritant materials inhaled, or as the result of injury. The action of cold upon the system, and its influence in producing disease, has been already considered, and it is only necessary to notice here that previous exhaustion, and sudden arrest of the cutaneous secretion, are almost invariably noticed.

SYMPTOMS.—Generally the disease is preceded for a day or two by premonitory symptoms, as, oppression of the chest, quickness and shortness of breathing, quick, short cough, dullness and languor, occasional sighing, and more or less chilly sensations and coldness of the extremities. The inflammation is usually ushered in by marked chills or rigors, continuing from one to two hours. There is now an increase of the symptoms before named, general uneasiness, and a dry and suppressed cough. With the disappearance of the chill, febrile reaction comes up, the pulse is frequent and hard, the skin dry and hot, appetite impaired, tongue coated white, bowels constipated, and urine scanty. Respiration is more short, frequent, anxious and difficult, and attended with unusual expansion and elevation of the chest; there is a frequent short cough, and increased warmth and moisture of the expired air. Upon auscultation we find that the respiratory murmur is replaced by the *crepitant* rhoncus, there is no bronchial sound, and no dullness on percussion. During this period the cough has been dry, or, if any expectoration, it is thin, transparent, or frothy.

By the third or fourth day, we find that the patient is unable to take a deep inspiration, respiration being performed principally by the diaphragm and abdominal muscles. He lies in preference upon the affected side, or, in double pneumonia, upon the back. There is a constant feeling of uneasiness rather than pain in the chest, with anxiety, sense of constriction, weight and fullness, and of internal heat. In some cases there is constant restlessness, with frequent attempts to elevate the head and shoulders. Now, the crepitant rhoncus disappears, and is replaced by a mucous rhoncus; percussion gives in-

creasing dullness over that portion of the lungs involved in the inflammation. This indicates hepatization, which, increasing, gives rise to extreme dullness on percussion, and to a remarkable clearness of the bronchial sound, and to bronchophony.

The cough, which has generally increased up to this time, is now attended with expectoration of an opaque mucus, which becomes characteristic about the fifth or sixth day. The sputa is of a yellowish, reddish, or, more frequently, rusty tinge, semi transparent, tenacious and globular; when discharged into a vessel it runs together, forming a single mass, so tenacious that the vessel may be inverted without detaching it. The rusty sputa has been considered as pathognomonic of pneumonia.

By this time the dyspnœa is much increased, the inspirations being obviously short and quick. If the disease is extensive, the oppression becomes urgent, and the sense of weight and anxiety is extreme. About the fifth or sixth day, in favorable cases, the disease commences to decline, the inflammation terminating by resolution. The cough becomes looser and less distressing; the expectoration less viscid and rusty-colored, and more abundant, resembling the sputa of bronchitis; the pain and dyspnœa are gradually relieved, the febrile symptoms disappear, and the patient is convalescent at about the seventh to the ninth day of the disease.

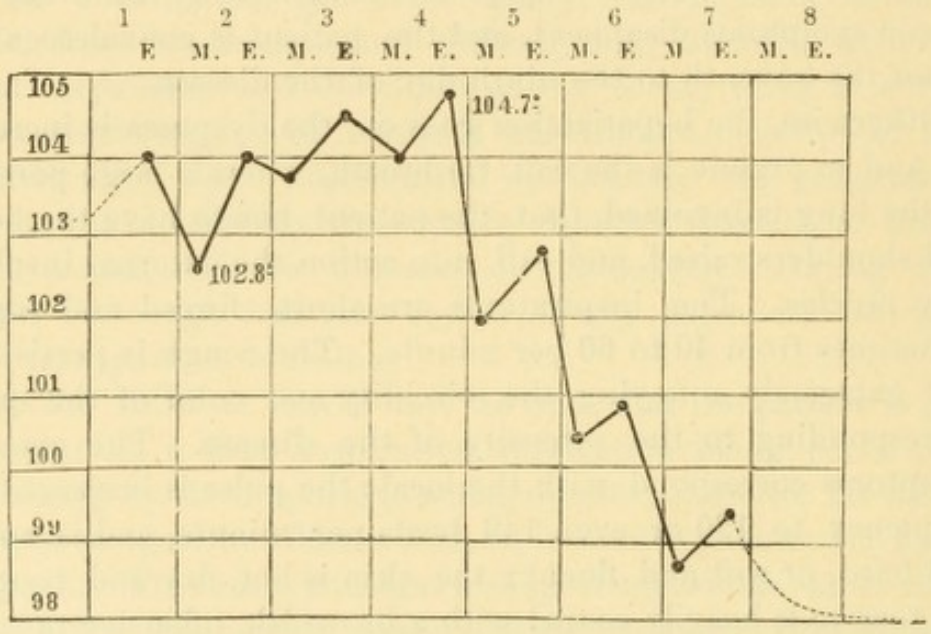
Otherwise, the hepatization goes on, the dyspnœa is increased, and so urgent is the call for breath, where a large portion of the lung is involved, that the patient has to have the head and shoulders raised, and call into action the external inspiratory muscles. The inspirations are short, forced and rapid, sometimes from 40 to 60 per minute. The cough is persistent and extremely annoying, the viscidity and color of the sputa corresponding to the intensity of the disease. The general symptoms correspond with the local: the pulse is increased in frequency to 120 or even 140 beats per minute, and is small and hard, or soft and fluent; the skin is hot, dry and rough; the tongue is heavily coated with a brownish, offensive mucus, which becomes darker as the disease advances, sordes appearing around the teeth. The patient becomes delirious, at first but partially and for a portion of the day, but finally it becomes continuous, and sinks into a low, muttering delirium

or into coma. The symptoms above named, extend over a period of one or two weeks, sometimes coming on rapidly, in others very slowly; the disease terminating fatally in some by the twelfth day, in others in three or four weeks, or the patient recovers after this, having worn the disease out.

In the suppurative stage, or stage of gray hepatization, the symptoms are all asthenic. The sputa is either a purplish-red mucosity, or a homogenous, light, yellow-colored purulent matter, of the consistence of cream, or a prune-juice-like material. The physical signs are, intense dullness on percussion, and a muco-crepitant sound on auscultation, very distinctive in character.

TEMPERATURE.—In pneumonia the symptoms are remarkably uniform for the first four or five days, there being but one-half to one degree difference in the morning and evening temperature. Neither is the range very high, being usually about 104°, very rarely above 105°. From the fifth day there is a rapid decline of temperature indicating defervescence, until it reaches the plain of health, 98°, on the ninth day.

RANGE OF TEMPERATURE IN A CASE OF PNEUMONIA OCCURRING IN A MAN THIRTY-EIGHT YEARS OF AGE, DATING FROM THE FIRST EVENING OF THE ATTACK. (Wunderlich.)



PLEURO-PNEUMONIA.—The symptoms of pleuro-pneumonia differ from pneumonia proper in little more than the development of pain, and consequent increased difficulty of respiration. The pleuritic combination is seldom so severe as to

increase the intensity or danger of the principal affection Rarely we find a case in which an intense inflammation of the pleura and lung occur together, producing a very serious affection, the symptoms being then of an acute pleurisy, followed by those of pneumonia.

TYPHOID PNEUMONIA.—It might be supposed that what is termed typhoid pneumonia should receive an extended description; I am of the opinion, however, that 90 per cent of these cases are those heretofore spoken of as typhoid fever with pneumonic complication, or badly treated cases of ordinary pneumonia. I have already given it as my opinion that any fever may run into a slow ataxic or typhoid state, so may an inflammation with its accompanying fever. We have a class of cases, however, that might properly be termed typhoid, inasmuch as the symptoms are all indicative of feeble vitality, and there is rapid change in the constitution of the blood.

The symptoms in these cases are, a protracted chill, febrile action coming up slowly; the pulse frequent, soft and fluent; heat of the surface not greater than natural; coldness of extremities; bowels easily acted upon or tendency to diarrhœa; limpid frothy urine; dirty coating of the tongue; and especially that dullness and indifference so characteristic of typhoid or typhus diseases. The inflammation in this case is ataxic; there is difficult breathing and cough, with watery expectoration. Physical examination gives us rapidly increasing dullness on percussion to a certain degree, at which point it remains sometimes during the entire progress of the disease; there is no crepitant rhoncus, and the mucous rhoncus sounds distinct and hollow. This condition is of variable duration, sometimes the disease is slow and protracted to weeks, at other times it is rapidly fatal.

DIAGNOSIS.—In general the diagnosis of pneumonia is easily made, the cough and difficult breathing direct attention to the thorax as the seat of the disease, the crepitant rhoncus in the first stage, and the mucous rhoncus and dullness on percussion, and rusty-colored sputa, in the second stage, are certain evidences of the affection. The amelioration of the symptoms from the fifth to the seventh day, give evidence of a resolution and subsidence of the disease; the aggravation

of the general symptoms, with increased dullness on percussion and difficulty of respiration, that the structure of the lung is being endangered; the prune-juice expectoration, or light-colored purulent sputa, that the structure of the lung is breaking down.

PROGNOSIS.—We may anticipate a favorable termination in a large majority of cases. In fact, we do not consider any dangerous, unless both lungs are affected, or typhoid symptoms are manifested from the commencement. In a majority of cases the disease can be arrested before there is much exudation into the structure of the lung, and consequently all danger avoided.

POST-MORTEM EXAMINATION.—In the early stage of the disease, the density of the lungs is slightly increased; they are reddened, and exhibit evidence of determination of blood. In the stage of hepatization, the density of the lung is so great that it sinks in water. If an incision is made into it, the cut surfaces vary from a pinkish-brown to a reddish-gray color, with sometimes more or less black pulmonary matter, or numerous little points of lighter color than the lung itself. The solidification appears to be dependent in part upon the exudation of coagulated lymph, but principally on an engorgement of the lung with blood. In the stage of gray hepatization or interstitial suppuration, the lung is still dense, and where an incision is made into it, seems to be mottled with yellow; pressure applied to the lung when thus incised causes an exudation of yellowish, purulent matter from the cut surface.

TREATMENT.—Pneumonia may be taken as representing the progress, and giving the results of the inflammatory process in the most important organs and tissues of the body. Hence, it will be well to consider it at greater length, and study its progress and termination under various plans of treatment.

Under the old plan of treatment—*antiphlogistic*—it gave a mortality of from fifteen to forty per cent., varying according to the remedies used. The stereotyped method employed when I first commenced the study of medicine—bleeding, brisk catharsis, Tartar-emetic as a sedative, Calomel retained with Opium to lessen fibrinous deposit, and a large blister to the chest, as a counter-irritant, and afterwards to promote absorption—would usually give the larger percentage. If

very actively pursued, by an energetic physician, to break up the disease, the mortality will be greater than this.

The treatment of the earlier Eclectics gave much better results, averaging from five to fifteen per cent. Occasionally a very energetic practitioner, with free purgatives, and other depressants, and the use of the blister, would find himself losing one-fourth of his patients, and would attribute it to *bad luck*. Whilst others, being very chary in the use of medicine, and recognizing the importance of keeping the stomach in good condition, and giving food—relying mostly on good nursing—would not have a mortality of one per cent.

When we study the tabulated cases, as given by English and Continental authorities, we are forcibly impressed with the fact, that treatment, as generally pursued, increases the ratio of mortality—and that, with diet and rest, the natural tendency of the disease is to recovery, the mortality reported being from a fraction of one per cent to seven per cent. We will get a better understanding of these facts by giving the methods by which these good results were obtained.

Dr. Chambers, Physician to St. Mary's and the Lock Hospitals, reports a mortality of two and a half per cent. in pneumonia; and lays down the following rules of treatment.

"1. Take blood locally (cupping the chest) cautiously, in the early stage only, and with a distinct reference to the power of each patient.

"2. Keep the chest, from first to last, enveloped in a jacket poultice, and allow of as little movement as possible.

"3. Administer food frequently, largely, and in a liquid form.

"4. When the nervous system is deeply smitten, as indicated by tremulous muscles, mental excitment, delirium, tawny tongue at an early stage, great depression, etc., give Opium; and in some cases give Alcohol, but now in small, repeated doses.

"5. When there is diarrhœa, stop it immediately with Opium, or Kino.

"6. Consider Antimony, Mercury, and purgatives, as poisons in pneumonia."

Dr. Bennett reports 129 cases treated by him, during a period of six years and a quarter, in the Royal Infirmary of Edinburg. Of these, 105 were uncomplicated, and *all recovered*," although

many of them were severe". Of 24 complicated cases, 4 died, 2 from meningitis, 1 from chronic Bright's disease, and 1 from extensive ulceration of the intestines. He draws these conclusions:—

"1. In any and every case, the disease appears to go through its natural progress, so long as the body is not too much exhausted, and the physician, as early as possible, supports it with nutrients and restoratives.

"2. As a general rule, prostration, and weakening complications, or remedies, not only materially lengthen the period of the disease, but especially prolong the convalescence. It is easily understood, therefore, how it happened that *the antiphlogistic treatment of former days proved so fatal.*

"3. As a means of palliating symptoms, and especially pain and dyspnœa, warm fomentations and poultices I believe to be the best and safest.

"4. As a curative treatment, I am satisfied that the best plan is rest in bed; nutritive drinks, especially good beef-tea, from the first, assisted by port wine—from four to eight ounces—if the pulse becomes weak, and solid nutrients as soon as they can be taken. The elimination of the exudation may be further assisted by salines, and diuretics, although nature will accomplish this herself, if the strength of the body be maintained. All active purgation, contra-stimulants, depressants, Anodynes, and lowering remedies of every description, should be avoided."

I need hardly say that my experience for the past twelve years, and observations of the practice of other physicans, coroborrates the statements of Drs. Chambers and Bennett. The question may be asked, then, what need is there of medicines in the treatment of pneumonia? It might well be answered by asking another, what need is there of medicines that increase the mortality from three to forty per cent.? Is it not better to trust to nature and the nurse, with a mortality of three per cent., than to a *regular* physician, with a mortality of twenty-five per cent?

Treatment is employed in this case, as in most other acute diseases, for three purposes: first, for the immediate arrest of the inflammation; second, to mitigate the sufferings of the patient, and support his strength, that the inflammation may run its course with as little unpleasantness, and as much safety

as possible; and third, to shorten the duration of the disease.

There is no doubt but that the inflammatory process can be stopped in the early stage, in a large number of cases; but in many, treatment to this end is not successful. The question then, arises, why should we not make this effort in all cases, and if we fail, then treat the case for the last two purposes? The reason is, that treatment for the arrest of the disease, if not successful, frequently increases the patient's suffering, and, to some extent, diminishes the chance of recovery. Treatment for the abortion of the disease, will, therefore, have to be conducted with great care. The plans may be named:—

The old-fashioned use of the emetic, Lobelia being a principal component, may be used for the arrest of the disease, and, if well employed, gives greater probabilities of success. The object is, to introduce as large a portion of the remedy into the circulation as possible, getting its general influence upon the system (profound sedation), and finally, emesis as an incident, rather than as the end of its administration. The emetic Powder of the Dispensatory, or the Acetous Emetic Tincture may be used for this purpose. After this influence has been attained, it is continued by nauseant diaphoretics.

But if, instead of this thorough action, it is given to the effect of irritation of the stomach and retching, and continued in this way, it never arrests the disease, or modifies its progress, but on the contrary, will frequently intensify every symptom.

The Spirit Vapor Bath, and the strong diaphoretics, are used by some for the same purpose, and occasionally with success. Still this plan will often fail, and leave the patient with greater impairment of the skin, and increased disease of the respiratory organs.

Once in a while we find a heroic practitioner, who is a firm believer in strong medicine, and he endeavors to accomplish the same object by the free use of Podophyllin, getting its *emeto-cathartic* effect. It will arrest the disease in some cases, probably on the principle that two morbid actions will not be tolerated at the same time; and that of Podophyllin is by far the most disagreeable. But if it does not, the patient is prostrated, and the stomach and bowels are left, either in a condition of irritation or atony, and food and necessary restoratives can not be taken or appropriated.

Veratrum Viride is also used for the same purpose, and oc-

casionally with good results. If the patient is put upon full doses, so as to bring the pulse down to 60, 50, or 40 beats per minute, and this influence can be continued, the inflammation must stop. But in a majority of cases, we will find that after a time the stomach becomes irritable, so that these quantities can not be taken; and finally the remedy has to be suspended; at once the fever rises, and soon all the inflammatory symptoms present as severe as at first. Or in place of this, we find sedation attended with great prostration, a feeble circulation, and tendency to congestion, so that we are forced to suspend the remedy for these reasons.

We will, therefore, adopt a treatment for the arrest, or *abortion* of the disease, in those cases only in which it seems feasible, or in which, from the extent of the inflammation, complications, or other reasons, the natural progress of the disease is deemed specially hazardous. It is my opinion, that in the majority of cases, we will obtain better results by directing our attention to the second and third objects of treatment.

Any remedies, or methods of treatment, that will control the frequency of the pulse, and give a regular and uniform circulation, will lessen the temperature, increase secretion, and, to this extent, will control the inflammatory process*. As the inflammation is thus controlled, we find less suffering, greater certainty of resolution, and speedier termination of the disease.

As a rule, specific remedies will be found to give the best results in pneumonia. As we have already seen, the usual routine of harsh remedies, whether they be *Regular* or Eclectic, increases the mortality, and diet and rest give very good results. For this direct treatment the reader might be referred to the general consideration of inflammation, but it will do no harm to repeat it here, as some of the remedies have a special influence upon the lungs.

Aconite. This remedy holds a prominent place in the treatment of pneumonia, especially in children and feeble persons. The pulse is *frequent* and *small*—the general indication—and if we can add the peculiar burning and constriction of the fauces characteristic of Aconite, its action is so much more direct. We use it in small doses, as—℞ Tinct. Aconite gtt. v. to gtt. x, Water ℥iv; a teaspoonful every hour.

Veratrum. Veratrum is the remedy where the pulse is *full*, either hard or bounding. In some cases, marked by great

irritation of the lungs, and an active circulation, it may be used in the old way, as already named for the arrest of the disease, but in the ordinary case it is better to give it in the small dose frequently repeated, as—℞ Tinct. Veratrum gtt. x to gtt. xx, Water ℥iv; a teaspoonful every hour.

The sedatives used in this way form the basis of the treatment, and other remedies are added as indicated. In some cases the pulse is neither small nor large, and we combine the Aconite and Veratrum.

Bryonia. This remedy has a special influence upon the respiratory apparatus, and will be frequently indicated. The pulse is of medium size, and the amount of blood flows steadily, the wave not being well marked. But the special symptom now is the pleuritic pain, even though we have no other evidence of pleuritic inflammation. This pain or uneasiness is a cause of cough, and of unrest, and evidently increases the determination of blood to the lungs. We add it to the sedative already named in the proportion of gtt. x to the ℥iv of water.

Macrotys. In some cases of inflammation of the lungs, we will find more than the usual amount of muscular pain, and a soreness of the respiratory apparatus, as if bruised, suggestive of rheumatism; and in addition to this we may have distinct pain in the walls of the chest. In this case, add of tincture of Macrotys (green root) gtt. xxx.

Asclepias. Though not as active as the Bryonia, this will be found a most excellent remedy in some cases. There is pleuritic pain, but the pulse is not hard, sometimes bounding, and the skin shows an inclination to moisture. The tincture, ℥j, may be added to the sedative mixture, or we may use an infusion.

Rhus. We have the common indications for this remedy in pneumonia: the small pulse, with *sharp* stroke, bright flushing of left cheek, pain in forehead and orbits, and the peculiar appearance of the papillæ at the tip of the tongue. In the child there is the sharp cry during sleep, and in the advanced stage of pneumonia the pinched features, and especially the contraction of the tissues about the eyes and around the base of the brain. When indicated by these symptoms, it is one of our best remedies, and I do not know one that

will replace it. To the sedative mixture add tincture of Rhus gtt. v. to gtt. x.

Lobelia. I do not propose to consider Lobelia as a "nauseant expectorant," for I find no need of this class of remedies. We do not care to establish a diseased condition of the bronchial tubes (characterized by increased secretion of mucus or muco-pus) to arrest an inflammation of the parenchyma of the lungs. I would reserve it for the one case in which there is a sense of oppression in the chest, impaired respiration from atony, præcordial oppression, and increased secretion of mucus. In these cases there is sometimes a full and oppressed pulse, in others a small, soft and feeble pulse. Such symptoms may sometimes come up suddenly, and we will meet them by giving a single dose of tincture of Lobelia (seed) of gtt. x or xx. In other cases we add to it the sedative so as to give it in small doses—less than nauseant.

In infantile pneumonia, and in some cases of the adult, as well as in asthenic bronchitis, we find that the bronchial tubes are filled with mucus or muco-pus, and there does not seem to be power to expel it. When the ear is applied to the chest the marked rattling and gurgling sounds tell the story very clearly. Here Lobelia is the remedy, and we usually give it with a stimulant to render the stomach more tolerant of it. The old formula is a good one: ℞ Tincture of Lobelia (seed) ℥j to ℥ij, Compound Tincture of Lavender ℥iij to ℥j, Simple Syrup ℥j; a teaspoonful every hour or two. The smaller quantity is for the child, and we usually direct the nurse to give it in smaller quantities more frequently repeated, and as much as the child can take short of nausea. In this case the sedative is not used, and the application to the chest is stimulant.

Ipecacuanha. Ipecacuanha exerts a specific influence in controlling irritation and inflammation of mucous membranes. For these reasons we use it in the treatment of the diarrhœa of irritation, and in colonitis. If the intercellular passages and minute bronchial tubes are involved, it will be found an excellent remedy. Infantile pneumonia has been treated with this alone, the powder triturated with sugar being given in doses of from one-fourth to one grain, repeated every one, two or three hours, so as to produce slight nausea. In the

ordinary case we add the tincture to our sedative solution in the proportion of gtt. x to gtt. xx.

Phosphorus. Singular as it may seem, phosphorus seems tc exert a direct action in inflammation of the lungs. It is especially indicated when the sputa becomes markedly rusty, and is then alternated with Aconite. I use the tincture, gtt. x, to water ℥iv, a teaspoonful every two hours.

Sanguinaria. I employ Sanguinaria when there is an irritative cough and a sense of rawness and constriction in the throat. The secretion is a frothy muco-pus. The nitrate of Sanguinaria is the best preparation; one to two grains to ℥iv of simple syrup or water, a teaspoonful every two or three hours.

Sticta Pulmonaria. I use the Sticta when the patient complains of pains in or between the shoulders, neck and occiput. The cough is usually harassing, and when secretion is established it is very abundant. It is given with or alternated with the sedative, in the proportion of gtt. x to gtt. xxx, to water ℥iv; dose a teaspoonful.

Ferrum. We do not propose to consider the common use of iron as a blood-maker, but its specific use in opposing disease. The controlling influence of the tincture of Muriate of Iron in some cases of erysipelas is well known, and we will find a few cases of erysipelatous inflammation of the lungs, and very unpleasant ones they are. There is an unpleasant flushing of both cheeks, the surface glistening, the tongue has a deep-red color, and the papillæ are prominent, or the coating is raised in spots, showing the red beneath. The sputa becomes grumous and like prune juice, and in some cases red blotches make their appearance on the extremities. I usually prescribe Tinc. Muriate of Iron ℥ss, Simple Syrup ℥iss; a small teaspoonful every three hours.

In another case the patient complains of dull pain in the back of the head, and the surface has a dusky red color. In this case—℞ Rademacher's Tincture of Iron gtt x, Water ℥iv; a teaspoonful every four hours.

Arsenicum. I use arsenic in very minute doses, generally taking the medium sized Homœopathic globules, and wetting them with Fowler's Solution. The indication for Arsenic is a soft and feeble pulse, an inelastic skin, and a small pallid

tongue. In such case ten of the globules may be given every four hours.

Carbo-Vegetabilis. With a soft and feeble pulse, extremities inclined to be cool, and an atonic and pallid tongue, there may be hemorrhage from the nose, throat, lungs, or even from the bowels. In such case give the first decimal trituration of charcoal in grain doses every two or three hours. The first symptoms named are sufficient without hemorrhage.

Quinine. Physicians are so much in the habit of placing Quinine first that I place it last in the list of special remedies. In pure pneumonia we have no use for it either in large or small doses, and its administration can only do harm. But in malarial regions, where the disease shows distinct periodicity, it becomes one of the prominent means of cure. The indication is *periodicity*, and the dose is the full antiperiodic one. But in the majority of cases, the patient must be prepared for its use, and for a day or two we give the sedatives and such other remedies as may be indicated, use the baths, and endeavor to establish secretion. Using these remedies the periodicity becomes more marked, and there are distinct remissions. With a soft pulse, a soft skin, moist tongue, and relief of the nervous system from irritation, we know that the Quinine will act kindly, and we give the ten to fifteen grains with an assurance that the disease will be mitigated, if not arrested.

In the advanced stage of the disease, when there is evidently a want of innervation, we use Quinine as a nerve stimulant. The dose will vary from one to two grains, and the quantity taken in the twenty-four hours from three to eight grains. It is frequently given with a stomachic bitter as the Hydrastia.

External Applications. Many physicians entertain a high opinion of external applications in the treatment of inflammation, and could hardly be satisfied if they were not applying something. But I am inclined to believe that more harm than good is done with them. It is customary to say "put a mush jacket on the patient suffering from pneumonia,"—but whilst a mush jacket is sometimes an excellent remedy, it may kill the patient whose lungs are so enfeebled that the blood can hardly circulate through them. We want to know, therefore, what application? If you can not determine what, use none

at all, and if your internal remedies are rightly selected, you will get along well.

When there is acute inflammation, in the early stage, the circulation being vigorous, especially in the skin, we could use the cold pack, or the hot pack, or the mush jacket with safety, and with a prospect of relief. But it must be in the early stage, and the crepitance must be marked.

If the re-action is not so vigorous, a couple of thicknesses of flannel may be wrung out of hot water, and applied, and covered with oiled silk; with still feebler re-action, we may use the flannel with mustard water.

But if there is any doubt about it, spread a cloth with lard large enough to cover the chest, and dust it with Compound Powder of Lobelia and Capsicum: this may be respread and resprinkled twice a day. In children it is a most excellent application, and, indeed, sometimes seems to give more relief than the internal medicine.

If there is some pleural pain, I would recommend the application of chloroform in the usual way—wetting a small piece of folded flannel, applying it quickly to the parts until it produces rubefaction—and then covering with the flannel wrung out of hot water and covered with oiled silk.

There is but one case in which I should use a blister. The pain is excruciating, impairs respiration, and points, limited to a very small place—in this a small blister, quickly drawn, gives relief.

Treatment of Complications. Inflammation of the lungs may be complicated by the addition of other functional and structural wrongs, and some of these cases are very unpleasant. We might say, "treat every complication you find as if it was the original disease," or "use such remedies as are indicated," but this is hardly sufficient for one who is reading for information, and it will be well to go over again the lesions most commonly met with.

Of the Stomach. In some cases we find an extreme irritability of the stomach, so that the patient can not take food or medicine, or if taken it is not absorbed, and in some the irritation goes to nausea and vomiting. The tongue is elongated and pointed, red at tip and edges; there is uneasiness in and tenderness at the epigastrium; and in consequence respiration is more difficult. The first thing to be done in this

case is to get a good condition of the stomach. Usually the small dose of Aconite with Ipecac, and the use of a sinapism or hot pack over the stomach will be sufficient. If not, we think of small doses of Bismuth, infusion of Compound Powder of Rhubarb, or of Peach-tree Bark, and of freeing the bowels by enema.

In place of this we may have the opposite condition. The tongue is heavily coated, especially at base, there is a bad taste, nausea and disgust for food, with feelings of fullness and weight in the epigastric region. The lungs feel the oppression, and there is evident tendency to congestion. If marked, an emetic is the speediest means of relief, and will free the lungs and give a better circulation of blood

Podophyllin. The old books described a bilious pneumonia, but what was meant by it, it would be difficult to find out. But I think we can point one out in which this anti-bilious remedy will prove very efficient. The patient feels dull and oppressed, and both lungs and abdomen have a sensation of fullness or oppression. The tissues are full, the skin looks dull and dirty, and the fullness of the veins is especially marked. The tongue is broad, pallid, atonic, and pretty uniformly coated a yellowish white. This is the case that the old-fashioned emeto-cathartic of Podophyllin relieved so promptly, and it is the one in which we can at first use the moderate cathartic dose, until we have a thorough action.

We find some of these symptoms when we would not like to give the cathartic dose of Podophyllin, and we then give it in quite small doses. The following formula is a good one: ℞ Podophyllin gr. j, Phosphate of Hydrastia gr. v; make twenty pills, and give one two or three times a day.

Nux Vomica. Another case of so-called bilious pneumonia shows very different symptoms. At first the patient may suffer from extreme nausea and vomiting, but the tongue is pale, large, and the tissues of the lower part of the face are full and sallow. In this case we arrest the nausea with Nux, in small doses. In another case, with the same appearance of the face, an atonic tongue, we have oppression in the epigastrium, and hypochondria, and the skin is dirty and sallow In this case we give Nux Vomica, alternated with the sedative.

Alkalies. Whilst studying the indications for remedies from the tongue, it will be well to note the fact that we will have

some cases requiring the alkaline salts. The tongue is broad and *pallid*, and with this symptom we find that no remedy acts kindly and well. We usually give Bicarbonate of Soda, adding it to water so as to make a pleasant drink.

Acids. In some cases we will find the *deep-red*, contracted tongue early in the disease, and we feel assured that unless care is used unpleasant typhoid symptoms will soon make their appearance. We generally use Muriatic Acid, adding it to water to make a pleasant acid drink.

Typhoid Pneumonia. As already noticed, a pneumonia may show typhoid symptoms from the first, or may develop them as it progresses. These cases require special attention to meet the symptoms as they arise, and especially to sustain the strength of the patient with proper foods, and sometimes stimulants. The remedies are drawn from the class of antiseptics, and we will again study the group of five.

Sulphite of Soda. The tongue is broad, full, moist, and *dirty*, and the nervous system usually correspondingly oppressed. We give the Sulphite of Soda in doses of from five to twenty grains, every three hours.

Sulphurous Acid. The tongue is of usual redness, but is *dirty*, there is a bad taste in the mouth, and the patient frequently complains of increased secretion in the fauces and throat which requires removal. The dose will be from five to twenty drops every three hours.

Muriatic Acid. The tongue is *deep-red*, contracted, dry, inclined to fissure, the coating grows brown and brown sordes accumulate around the teeth. The use of acid has already been referred to, and we note this here as a remedy for the typhoid state.

Baptisia. The Baptisia is a prominent remedy in the treatment of typhoid pneumonia. The tongue is *dusky-red*, or livid, or purplish, the expectoration looks grumous or like prune juice, the face is dusky, and the abdomen full. We use it with Aconite, in the following proportion: ℞ Tinct. Baptisia gtt. x to gtt. xx, Tinct. Aconite gtt. v, Water ℥iv; a teaspoonful every hour.

Chlorate of Potash. Given, a moist tongue, increased secretion from throat, and putrid odor from breath, and I would recommend Chlorate of Potash in doses of five to ten grains every three hours.

Quinine Inunction. It is in these unpleasant cases that we find so much advantage from the use of inunction. If the skin is dry and hard it softens it, and if the cutaneous circulation is feeble, the addition of a stimulant renders it one of the best means of getting normal action.

*Stimulants.** Whilst I do not believe in the modern stimulant plan of treatment, I recognize cases in which stimulants are of great importance. In aged persons, it is a good rule to give a moderate amount of alcoholic stimulants early in the

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* But as we analyze a case of inflammation before us we find that in some the irritation is the prominent feature, in others it is the impairment of life. We have already considered the means for the first, now let us think of the second. Impairment of life! What termination, so far as the part is concerned, does this lead to? Most assuredly suppuration, or death by sloughing or gangrene. If these are undesirable terminations, what have we to think of in the treatment? Most assuredly of those means which will conserve, sustain, or increase the life of the part.

We have already seen that remedies were elective, and influenced certain parts, and that they might be divided into two classes, sedatives (sometimes depressants) and stimulants or tonics. If now we desire, especially, to sustain the life of the part, we employ the stimulant remedies. In acute inflammation, where there is a vigorous circulation, and excitement marked, we can afford to use cold, direct sedatives, hot fomentations, or poultices. But in many cases of inflammation, we dare not use them—to do so is to risk the life of the part and the patient. I recall the case of a friend, who being exposed to cold, had inflammation of the lungs; the Doctor applied the half-sheet cold pack to the chest and—there was a funeral. In another case of not very severe injury of the foot, the physician in attendance poulticed it continuously for five days, and when I was called it was with difficulty that with the use of permanganate of potash and sulphate of zinc, I could save enough for the man to walk upon. I have seen scores of cases of felons in which the finger was poulticed until the bones were wholly destroyed, and had to be removed. I have seen carbuncles poulticed until they were as large as saucers, in one case as large as a dinner plate, and the spinous and transverse processes of the vertebræ dissected out. I have seen two cases of purulent conjunctivitis in which the eye was destroyed by poultices. I have seen a woman's breast poulticed until it was completely rotted and destroyed. I have seen the head of the penis poulticed off, in cases of chancroid. It is hardly worth our while to name more, for you have doubtless seen them.

When, therefore, we have impairment of the life as a principal feature, our local applications become stimulant and tonic, not sedative and relaxant. We think of the ordinary stimulants of the materia medica, of the antiseptics, sulphurous acid, baptisia, permanganate of potash, chlorate of potash, sulphate of zinc, etc.—*E. M. Journal.*

disease. A hot whiskey toddy, frequently repeated, so as to continue its moderate stimulant influence is better than medicine. It will be at once suggested to the reader that there is a class of feeble persons, who are in many respects like these old people—they are prematurely aged. These also may have the whiskey or brandy.

Then we have the cases of prostration as the disease advances, either with or without the typhoid symptoms. The patient can not take food in sufficient quantity, and we give brandy or good whiskey or wine to suppliment it. As a rule it is better to give the stimulant in small quantity, frequently repeated, and if the influence is beneficial we will find all the functions improved.

Food. Pneumonia is essentially an asthenic disease, and it is very important that the patient should have good food at regular intervals. One of the objections to the expectorant treatment is, that it keeps the stomach in such condition that food can not be taken. We insist that the stomach should be kept in good condition, whether remedies are given or not. In many cases boiled milk will be the best diet; at any rate where a high temperature is maintained the food should be calorifacient. If the pulse is feeble, the patient lies principally on his back, and there is muscular debility, give beef-tea.

The treatment for *pleuro-pneumonia* will be the same as for pleurisy for the first day or two, and afterwards as above described.

CHRONIC PNEUMONIA.

Chronic inflammation of the lungs is not a common disease, and yet it occurs sufficiently often to make it an interesting subject of study. It is said to be the result of acute pneumonia, by many authorities, and doubtless this is the case many times, but I have good reason to believe that in quite a number it results from sub-acute inflammation, that has not been sufficiently intense to prostrate the patient; it also results, in some cases, from organic lesion of the heart. When the result of acute pneumonia, it is observed that the patient

does not fully recover from the acute attack, but is still troubled with symptoms indicative of imperfect respiratory action. In the second case, it comes on gradually, following a severe cold, the symptoms, both local and constitutional, becoming more and more marked as the structure of the lung becomes affected. In the third case, it usually comes on slowly from imperfect circulation of blood in the lungs.

SYMPTOMS.—Among the most prominent local symptoms are cough, dyspnœa, or oppression of breath, and quickness of respiration. The cough varies greatly, sometimes coming on at frequent intervals, deep, hard and harassing; at others short and hacking, or deep and more or less hollow. Occasionally the patient coughs more in the evening on going to bed, and in the morning on arising, than at other times, as in phthisis. Usually there is more or less mucous expectoration, though sometimes the cough is constantly dry; occasionally the matter thrown off is purulent and in considerable quantities, from the breaking down of portions of the hepatized lung. The dyspnœa is proportionate to the extent of the inflammation, though always increased by exertion.

The general symptoms are those of depression: there is loss of strength and flesh; the appetite is impaired, and digestion imperfect; the bowels, at first constipated, at last become irregular; the skin is either dry and harsh, or soft, relaxed and flabby—in either case failing to perform its functions. If the disease is severe, the patient seems to have an intractable intermittent fever, the chill coming on in the afternoon or evening, followed by hectic fever, and this by exhausting night sweats. As the disease progresses, these symptoms become worse; the patient is much reduced in flesh; he has just sufficient strength to walk around; finally becoming bed-fast, he soon sinks. A very marked resemblance to phthisis, both in the general and local symptoms, will be noticed, so that it is very difficult, if not impossible in some cases, to determine the difficulty.

We rarely have an opportunity of making a physical examination in the early stage of the disease, the patient applying for assistance only when the disease has produced the severe general symptoms above named. At this time we will find marked dullness on percussion over the seat of the disease,

which is most generally situated in the middle or inferior lobes of the lungs, and not at the apex, as in phthisis. Auscultation gives us a marked mucous rhoncus and bronchophony. Occasionally a crepitant rhoncus is heard at the outside of the dullness, which would indicate a more acute case, and spread of the inflammation, unless the symptoms were abating, when it would be taken as a sign of resolution.

DIAGNOSIS.—We distinguish chronic inflammation of the lungs from phthisis, first, by the extensive dullness compared with the general symptoms; second, by its being situate in the middle or inferior lobes, rather than in the apex of the lungs; and, third, by the absence of any hereditary tendency to consumption.

PROGNOSIS.—The prognosis will be favorable in probably one-half the cases. The previous good health of the patient, the absence of any hereditary tendency to disease of the lungs, and still sufficient strength to take exercise in the open air, may be considered favorable, whilst the reverse would be considered unfavorable.

POST-MORTEM EXAMINATION.—According to Copland "The gray induration constituting the more simple form of the disease varies in its aspect like acute hepatization, according to the tissues chiefly affected. It may thus assume a granular or oolitic aspect, owing to the thickening of individual vesicles. In some cases, it appears streaked and veined from the hypertrophy of the interlobular septa and cellular tissue around the vessels; in others it is more uniform and darker in color. In this variety, the cellular tissue between the lobules is sometimes thickened to the extent of several lines, and is of a light drab or gray color, like that of miliary granulations, and, like those, has almost the density of cartilage."

TREATMENT.—A very careful examination of the patient, as regards the general symptoms, is necessary in order to obtain the best results from medicine. For instance, if the bowels are not irritable, we can put our patient upon small doses of Podophyllin, with one of the diuretic Salts of Potassa, in addition to the remedies indicated by the symptoms, and in some cases we thus get a rapid removal of the effusion.

It is a little singular, but a chronic cough is influenced by remedies which act gently upon the bowels, more than by those said to act upon the lungs. The small Podophyllin pill—℞ Podophyllin gr. ij, Phosphate of Hydrastia gr. x; make forty pills—one twice a day, exerts a good influence.

We require remedies which give rest to the respiratory apparatus, relieving irritation and checking the cough. The Stillingia Liniment in drop doses on sugar will be found an excellent remedy. The Sticta is frequently indicated by pain in the shoulders, neck and occiput; the Sanguinaria by the sense of constriction and tickling in the throat; the Aesculus may be thought of when there is some asthmatic trouble; the Senega when the skin is harsh and scaly, or for its common action to check profuse secretion. Balsam of Copaiba with Tincture of Cubebs, though nauseous, is one of the best stimulants to the respiratory mucous tract.

In addition to the remedies used in the ordinary way, we may sometimes employ inhalation with advantage. I prefer the air spray apparatus, and would suggest those named for chronic laryngitis. The Salicylic Acid with Borax is useful when there is increased bronchial secretion; and simple hot water with a minute portion of Hydrocyanic Acid, or Cyanide of Potassium, may relieve irritation and give rest when other means fail.

Counter-irritation proves very effective in this disease. If the patient is of a robust habit, I direct alternate wet and dry cups two or three times a week, followed by the cold Vinegar bandage. In other cases, the irritating plaster proves most efficient; if the patient is feeble, it should be used just sufficiently to produce a crop of small pustules, then removed and re-applied when the irritation has disappeared; in other cases it may be used to produce free suppuration. The use of stimulant and other baths is of the highest importance, for if the skin fails to act, the entire treatment will fail; much attention must likewise be paid to getting an equal circulation in all parts of the system, and for this purpose, if there is coldness of the extremities, the Tincture of Capsicum lotion heretofore named, should be employed.

Good digestion and a highly nutritious diet are very important elements of success, as experience proves that a diseased structure acquires its original condition in proportion as the blood is rich in the elements for nutrition Hence, in all of these cases a small portion of some judiciously selected tonic should form a part of each day's treatment.

ASTHMA.

The name of this disease indicates accurately its character: "I breathe with difficulty;" and anything else may be considered a complication, as are organic lesions of the respiratory apparatus. Copland's definition, "Great difficulty of breathing, recurring in paroxysms, accompanied with a wheezing sound, sense of constriction in the thorax, anxiety and a difficult cough, terminating in mucus expectoration," is a very complete description.

PATHOLOGY.—It is now generally admitted that asthma is purely a nervous affection, the irritation being expended in a series of muscular fibers that connect the extremities of the cartilages of the bronchial tubes, forming about one-third of the diameter of the air-passage. Any cause that will irritate the nerves distributed to this muscular structure, causing more or less permanent contraction, produces asthma.

As regards the cause of the disease, there is a diversity of opinion, some attributing it to irritation of the bronchial mucous membrane, others to disease of the cerebro-spinal nervous centers, others again to a lesion of the blood, and others to organic disease of the heart. Probably all are correct, as we observe that irritation of the mucous membrane from cold is frequently the exciting cause; that the disease is induced by excessive emotional excitement, and sometimes comes on during disease of the nerve centers; that in chronic cases, remedies directed to the blood, are about the only ones that are permanently beneficial; and that in some forms of heart disease, asthma appears as a symptom.

Dr. Todd concludes: "That asthma is primarily humoral; that it is caused by a poison or morbid matter acting on that portion of the nervous system which ministers to the function of respiration; that it leads to dilatation of the lungs and walls of the chest, to emphysema, and ultimately to dilatation

of the heart; that the habit may pass off, the morbid matter being no longer created, the patient ceasing to be asthmatic just as a person ceases to be gouty or epileptic; and that ceasing to be asthmatic, the patient may remain, or may not remain, emphysematous, according to the severity and duration of his previous attacks.

SYMPTOMS.—The symptoms of asthma are so marked that an extended description is unnecessary. In some cases the attack is preceded for a day or more by a loaded tongue, some pain and weight in the head, and a feeling of languor, but in others there are no premonitory symptoms. The disease is sometimes sudden in its onset, the patient being roused at night by a feeling of impending suffocation, and forced to throw open the windows and doors in order to get breath.

Usually it comes on gradually, attaining its greatest violence in two, three or four days, and as gradually disappearing. We find a patient suffering from an attack of asthma with the head and shoulders raised and thrown forward, the breathing remarkably difficult, wheezy, laborious and prolonged, and anxiety and evidence of imperfect aeration of the blood, proportioned to the severity of the disease.

Sometimes there is markedly increased secretion, the air-passages seeming to be loaded with mucus, at others the respiration is shrill and whistling. Cough is present in nearly all cases, sometimes very severe, and prolonged, giving rise to very great difficulty of breathing, and aggravating the patient's suffering; at others short, and occurring at unfrequent intervals.

The duration of the paroxysm is very variable, sometimes but a few hours, at others, days or even weeks. Its recurrence, too, varies greatly even in the same cases; in some the patient is hardly free from the disease from autumn until summer. Rare cases are met with in which the one attack having been arrested, the patient is not predisposed to its recurrence, but in a large majority the disease becomes constitutional, and an attack of asthma is the result of any indiscretion, or sudden change of weather.

DIAGNOSIS.—The difficult breathing, with absence of febrile symptoms, is sufficient to determine the character of the affection; if not, the previous history of the patient will make the case plain.

PROGNOSIS.—Though not classed among those diseases likely to prove fatal, it occasionally terminates the life of the patient speedily. In these cases, there is usually some organic affection of the heart. It is a very difficult disease to cure radically, and possibly in one-half the cases we meet, if confirmed, the treatment will be merely palliative.

TREATMENT.—The treatment of asthma may appropriately be divided into palliative and permanent, the first having reference to mitigating or arresting the paroxysm, the second to removal of the cause.

Palliative Treatment.—Lobelia is considered by all schools as standing at the head of remedies of this class, and is frequently useful. It may be employed in the form of the Tincture, in doses of half a teaspoonful to one teaspoonful every one or two hours until nausea is induced; or better, make an infusion of the Emetic Powder, and administer to induce free emesis, afterwards in smaller doses to keep up the effect. I have employed the Comp. Powder of Ipecacuanha and Opium in doses of five grains, and Opium, with Powdered Lobelia-seed, is given with advantage. The herb smoked in a common tobacco-pipe, with an equal quantity of Stramonium leaves, is highly recommended, as is also the inhalation of the vapor of an infusion of both.

Carbonate of Ammonia added to the preceding prescriptions has been recommended, as has the Hydrochlorate, and an inhalation of Aqua Ammonia. The Nitrate of Potash is one of the best remedies I have seen used: make a saturated solution in boiling water, and saturate common brown paper, let it dry, and burn it in the patient's room, allowing him to inhale the smoke. Another form is to take pasteboard broken down in hot water, ℥iv.; Nitrate of Potash, ℥ij.; Belladonna, Stramonium, Digitalis, Lobelia Inflata, aa. in powder, grs. xx.; Myrrh and Olibanum, aa. ℥ijss.; incorporate all these and dry thoroughly, when it may be burnt in the patient's room as the preceding; or it is formed into cigaretts by saturating the leaves of Stramonium and Belladonna with Nitrate of Potash.

Chloroform has been employed to mitigate the paroxysms, which it does in many cases very speedily; twenty or thirty drops are inhaled from a handkerchief, and repeated cautiously. M. Guerard dipped a small piece of charpie into

pure Liquor Ammonia, and then instantaneously into water, and passed into the back of the throat, touching rapidly the pillars of the fauces, soft palate and pharynx. He treated over one hundred in this way, and seldom had to repeat the operation.

Dr. L. C. Dolley, in an article on asthma, speaks of using a Syrup of Lobelia, Sanguinaria and Ictodes Fœtidus, with advantage.

TREATMENT FOR A RADICAL CURE.—Many plans of treatment have been recommended for the permanent cure of this disease, as well as specific remedies for this purpose, but as yet without flattering success. I have used as special agents for this purpose, Essl. Tincture of Achillea, Ptelea, Euonymus and Collinsonia, aa. in doses of a teaspoonful four times daily, with marked advantage in some cases, but without any in others. The Tincture of the Rosin Weed, a variety of the Silphium, growing in Illinois, has, so far as we have tried it, answered a good purpose, and needs further investigation.

Considering the disease as one of the blood, a course of treatment adapted to free it from its impurities by elimination has been adopted with success. Thus, the old formula,

℞ Sulphur Præcip., ʒss.
Semin. Anisi. Contus, ʒijss.
Confect. Sennæ,
Syr. Tolu, aa. ʒvj. M.

In dose of one or two teaspoonfuls, was very efficient in some cases; or as prescribed by Dr. Dolley:

℞ Sulphur, ʒjss.
Anise Seed (pulverized), ʒss.
Senna,
Cream of Tartar (pulverized), aa. ʒj. M.

In doses of a teaspoonful in Syrup taken at night, or in severe cases, two or three times a day. Dr. D. remarks, that "an experience of fifteen years has demonstrated to his mind conclusively the virtues of Sulphur." He also recommends:

℞ Tincture Phytolacca, ʒiij
Iodide of Potassa, ʒj.
Simple Syrup, ʒj. M.

In doses of a teaspoonful three times a day.

Especial attention should be paid to the general health of the patient; I have known cases where even temporary alleviation could not be obtained, owing to irritation of the stomach, and one case radically cured simply by getting the alimentary canal in normal condition, there having been confirmed

dyspepsia and obstinate constipation. The new remedy, Grindelia Robusta, has been used with good results in doses of ten drops every three hours. This remedy may also be used with the nitre as an inhalation.

Among the remedies which have given me the best results is the Æsculus Glabra. It is especially in cases where there is persistent difficulty of breathing, and not in those where the asthma is paroxysmal with intervals of complete freedom, that it gives the best results. It may be used in the proportion of gtts. x to ʒi of a good tincture, to water ℥iv., in doses of one teaspoonful every two to four hours.

Among the measures we now employ for speedy relief in paroxysmal asthma is the hypodermic injection of Morphia with Atropia. The dose must be proportioned to the severity of the disease and the strength of the patient.

EMPHYSEMA.

Emphysema is the infiltration of air into a part not natural to it; or the undue distension of the parenchyma of the lungs with air, caused by the rupture of the air-cells It arises from two causes: first, as the result of injury, a communication being established between the respiratory apparatus and the emphysematous part; and second, by forcible action of the lungs, whereby the tissue is ruptured, as in asthma, some cases of bronchitis, etc.

In the first case, the emphysema is usually of the thoracic parieties, the cellular tissue being sometimes remarkably distended. It is readily determined by the crepitation on percussion, but it is not so easy sometimes to determine its cause.

In the second case we find an unnatural resonance on percussion, and, judging from the physical signs, should expect free respiration. But, on the contrary, it is more or less difficult, with evidence of imperfect aeration of the blood. The accompanying disease gives additional evidence of the difficulty.

Treatment.—The treatment of external emphysema will have to be adapted to each individual case. If from a wound, as soon as the communication between the lungs and the

cellular tissue is cut off the further extension of the emphysema will stop; when necessary, owing to the extreme distension, free incisions have been recommended to remove the air.

In internal emphysema, a tonic and supporting treatment must be adopted; and if the cause is still in operation, it must be removed, if possible.

PHTHISIS PULMONALIS.

CONSUMPTION.

This most insidious and intractable of all diseases of the respiratory apparatus is of very frequent occurrence, and year by year the predisposition to it seems to increase. It demands careful study, as it is only in its earlier stages that curative treatment is of any avail; at a later period all we can do is to palliate the symptoms as they arise, and smooth the sufferer's pathway to the grave.

PATHOLOGY.—The impression that phthisis is a disease of the lungs exclusively, is rapidly giving way; and most authorities now recognize a pre-existent disease of the blood. It is true that we are not able to analyze the vital fluid, and determine the changes that give rise to the exudation of tubercle, but sufficient evidence exists in the symptoms and character of the deposit to warrant the opinion. We hold that previous to the commencement of the tuberculous deposit, there has been deficient elaboration of the blood, and that, in consequence of this, there exists in the blood a material of low organization, not readily removed by the excretory organs, but which may be deposited in any organ or tissue to which a determination of blood is set up. Tuberculosis, it will be recollected, is not confined to the lungs, but may affect any part of the system, the determining cause being, as above named, an irritation causing determination of blood.

The evidence of these views is found, first, in the fact that phthisis occurs in families of feeble vitality, and that it is hereditary simply because parents of feeble vitality can not produce healthy offspring, the children inheriting the imperfections of the parents. In such families we notice the evidence of this, from childhood up to old age, especially in the diseases of childhood of which so many die. Second, pre-

ceding the development of phthisis, we observe a marked depression of vitality manifested by a feeble performance of all the functions of the body, and more or less defect of tonicity. Lastly, the only treatment that offers a probability of success is that which improves digestion, the elaboration of the blood, nutrition, and excretion; it is only by raising the vitality above the point of tuberculosis that we are able to ward it off or arrest it.

It is not known whether the tuberculous matter is directly the result of imperfect digestion and assimilation, the material thrown out having served no purpose in the body, or whether, as some suggest, it is the detritus of the tissues, and dependent for its character on an imperfection of nutrition and excretion. I am inclined to believe that it has its origin from both, there being only this difference: that in the one case the material has never been used, in the other, that, though used, its imperfections were such that it had to be speedily removed.*

SYMPTOMS.—In the early stage of the disease we notice that the person is in feeble health; there may be no marked lesion, no special derangement of any function, but a condition very accurately described in the popular phrase "going into a decline." Possibly, at this time the patient has a slight cough —more rarely a severe one—occurring principally in the evening and morning; occasionally lancinating pains in the upper part of the thorax, and languor and loss of strength, occasion some alarm. The patients' strength having failed, so as to unfit them for their usual employment, they consult a physician, not for disease of the lungs, which they can with difficulty believe, but for the debility and minor derangement of some function they have noticed, the cough and pain being considered of minor importance.

If we closely examine the patient now, we will find the evidences of failure of vital power in every symptom. The circulation is feeble; the skin, kidneys and bowels do not perform their functions properly; the appetite is variable, but gradually failing; they remark that their food does not seem to strengthen them as usual, and nutrition is feeble, as evidenced by the soft and flabby muscles. The positive signs of phthisis are not yet so fully developed as to be evident to the

*See Principles of Medicine, pages 86 to 96.

casual observer; yet the persistent cough, recurring night and morning, the neuralgic pain in the apex of the thorax, slight hemorrhage in some cases, with many times a well marked red line at the border of the gums (gingival margin), is sufficient evidence. If we can carefully examine the lungs, we will find slight dullness on percussion over the apex of the lung diseased, or if the tubercle is deposited in mass near the anterior surface, the dullness will be marked. Auscultation gives us a roughening of the respiratory murmur, with more or less mucous rhoncus if secretion has been established from the bronchial mucous membrane.

As the disease progresses there is further loss of strength, and failure of the functions of digestion and assimilation.

The cough is more harassing, the pains in the chest more marked and persistent; hemorrhag occurs in about two-thirds of the cases, and slight difficulty in respiration is noticed. Now commences the breaking down of a portion of the deposit; the cough is worse; hectic fever appears in the afternoon; night sweats at night; the appetite is poor, and the bowels irregular. The expectoration, which varies greatly in different cases, sometimes profuse, at others scanty, but previous to this consisting of a yellowish or whitish mucus of considerable consistency, now becomes cheesy or semi-purulent, with sometimes small masses of tubercle in the sputa. This paroxysm, if we may so call it, lasts from a few days to sometimes three or four weeks, when the worst symptoms gradually give way, and the patient ceasing to suffer and regaining some strength, flatters himself that he is getting well. The tubercle is still being deposited, and the amelioration but temporary; for in a short time the same symptoms return with increased intensity, the patient becoming more and more feeble as the disease advances.

Finally, the system fails to react and the deposit of imperfectly organized tubercle is very rapid, and its breaking down and destruction of the tissues of the lung correspond, and in a short time the patient's strength is exhausted.

TEMPERATURE.—We present a diagram of acute phthisis running its course to a fatal termination in five weeks. The highest temperature in this case was 104°, the average of morning and evening about 102.5°. These cases are not of

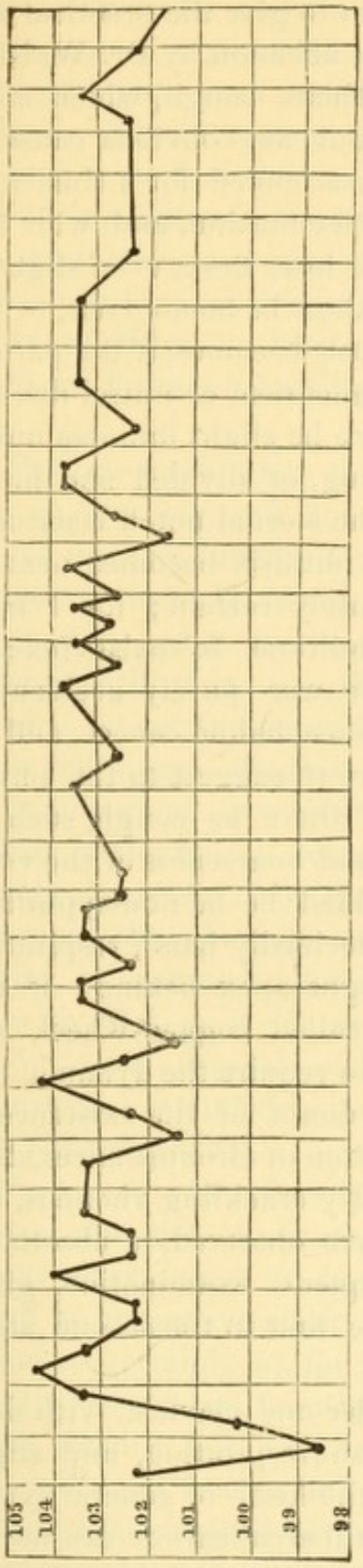


DIAGRAM SHOWING THE RECORDS OF TEMPERTURE IN A CASE OF ACUTE PHTHISIS.—(Parkes.)

very frequent occurrence, but the diagram will illustrate equally well many cases of ordinary phthisis in the latter part of its course.

The progress of chronic phthisis is very variable, sometimes running the same course and affecting the same changes in months, which in other cases occupies years.

In the early stage of consumption the diagnosis is made with difficulty, unless the physician has more than usual skill and experience; and often the case progresses to the second stage, or even far in this, before the diagnosis is made. As the treatment of phthisis is likely to prove successful in proportion as the disease is clearly understood, and remedies and hygienic means employed early, it is of great importance that we have some reliable means of diagnosis that can be used equally well by those who are not, as by those who are skilled in physical diagnosis.

Such means I believe we have, to a certain extent, in the body thermometer. Given, a case of chronic disease, in which the patient has a cough, the temperature ranging at 100° and 101°, the pulse at or near 100 beats per minute, the condition of phthisis is present. If to this you add, occasional neuralgic pains in the chest, about the apex of the lung, and occasional small hemorrhages from the lung, the diagnosis is clear. And so long as the increased temperature is maintained, the disease progresses.

DIAGNOSIS—I cannot do better than to give the practical and clear analysis of the symptoms of this affection by Dr. Walshe: "A young adult who has an obstinate cough, which commenced without coryza, and without any obvious cause, a cough at first dry, and subsequently attended for a time with watery or mucilaginous-looking expectoration, and who has wandering pains about the chest, and loses flesh, even slightly, is, in all probability, phthisical. If there be hemoptysis, to the amount of a drachm even, the diagnosis becomes, if the patient be a male, and positively free from aneurism or mitral disease, almost positive. If in addition, there be slight dullness under percussion at one apex, with jerking, or divided and harsh respiration, while the resonance of the sternal notch is natural, the diagnosis of the first stage of phthisis becomes next to absolutely certain. But not absolutely certain; for I have known every one of the above conditions to exist (except hemoptysis, the deficiency of which was purely accidental) when one apex was infiltrated with encephaloid cancer, and no cancer had been discovered elsewhere to suggest to the physisician its presence in the lung. If there be cough such as described, and permanent weakness and hoarseness of the voice the chances are very strong (provided he be non-syphilitic) that the patient is phthisical. If decidedly harsh respiration exists at the left apex, or at the right apex behind; if the rythm of the act be what I have called cogged-wheel, and there be dullness, so slight, even, as to require the dynamic test for its discovery, there can be little doubt of the existence of phthisis. If, with the same combination of circumstances, deep inspiration evokes a few clicks of dry crackling rhoncus, the diagnosis of phthisis, as far as I have observed, is absolutely certain. If these clicks, on subsequent examination, grow more liquid, the transition from the first to the second stage may be positively announced.

"If there be slight flattening under one clavicle, with deficiency of expansive movement, harsh respiration, and slight dullness under percussion, without the local or general symptoms of phthisis, the first stage of tuberculization can not be diagnosed with any surety, unless there be incipient signs at the left apex also; the conditions in question, limited to one side, might depend on chronic pneumonia or on thick induration matter in the pleura. The existence of limited though mark-

ed dullness under one clavicle, with bronchial respiration and pectoriloquy, so powerful as to be painful to the ear, the other apex giving natural results, will not justify the diagnosis of phthisis I have known this combination when the apex of the lung was of model health, and a fibrous mass, the size of a walnut, lay between the two laminæ of the pleura. I would even go further, and say, that the combination in question is rather hostile than otherwise to the admission of phthisis, as, had tuberculous excavation formed at one side, the other lung would, in finite probability, have been affected in an earlier stage.

"Pneumonia limited to the supra and infra-clavicular region on one side, and not extending backward, is commonly, but not always, tubercular. Subcrepitant rhoncus, limited to one base posteriorly, is not, as has been said, peculiar to tubercle; it may exist in emphysema, and in mitral disease. Chronic peritonitis, in a person aged more than fifteen years, provided cancer can be excluded, involves as a necessity tubercles in the lungs. To this law of Louis, it is necessary to add the qualification: provided Bright's disease be also absent. Pleurisy with effusion, which runs a chronic course in spite of ordinary treatment, is in the majority of cases tuberculous or cancerous; the character of the symptoms previous to the pleurisy, will generally decide between the two. Double pleurisy, with effusion, is not, as has been said, significant of tubercle; for it may depend on Bright's disease. If the latter disease can be excluded, carcinoma and pyohæmia remain as other possible causes.

"If a young adult, free from secondary syphilis and spermatorrhœa, and not dissolute in his habits, speedily lose flesh without clear cause, he is, in all probability phthisical, even though no subjective chest symptoms exist. But he is not by any means certainly so, for he may have latent cancer in some important organ, or he may have chronic pneumonia. Nay, he may steadily lose weight, have dry cough, occasional diarrhœa, and night sweats, and present dullness under percussion, and bronchial respiration under both clavicles, and yet be non-phthisical. I have known all this occur in cases, both when the lungs were infiltrated superiorly with primary encephaloid cancer, and when they contained secondary nodules of the same kind. Failure of weight becomes less valuable as a

sign of phthisis, the longer the thirtieth year has been passed. The discovery of cardiac disease with marked symptoms, deposes against, but does not exclude the existence of active tuberculization. The existence of cancer in any organ is unfavorable to the presence of tuberculous disease, but tubercles and cancer may co-exist in the same lungs."

PROGNOSIS.—In the early stage of phthisis, if not hereditary, but the result of active causes, the prognosis should be favorable; but when hereditary, or advanced to the stage of breaking down, it is unfavorable.

POST-MORTEM EXAMINATION.—On opening the thorax, the lungs do not generally collapse as they do when not diseased; they are increased in weight, and the diseased parts sink in water. On making an incision through the part affected, we find tuberculous masses, from the size of a hemp seed to that of a pigeon's egg, the larger ones being accumulations of the smaller. These differ in condition: some are solid, others softened to a greater or less extent, and others broken down, forming a pultaceous mass. We will also observe *vomicæ*, more or less numerous, left by the discharge of the tuberculous material. In some cases they are partially cicatrized; in others, free of tubercle, but ragged; and in others, again, containing a disgusting mass of broken-down tubercle and structure of the lung. In some cases we find no trace of organization left in the part diseased, the entire tuberculous mass, with the lung, seeming to have given way at once, and an offensive semi-purulent material is all that is left.

Tubercle consists of albumen, with some gelatine and fatty matter. The division into gray and yellow is but indicative of their degree of resistance to change, as all tubercle becomes yellow and opaque before disintegration. If examined with the microscope, they are found to consist of minute and irregular granules, with but slight trace of cells and fibres, showing their low organization.

TREATMENT.—As before remarked, if we expect to cure consumption, we must do it in the first stage of the disease—I say if we cure—when, properly speaking, it should be, if nature cures, the physician simply removing obstacles. The objects to be accomplished are plain: we must increase the

patient's vitality above the point of tuberculosis, and to do this, must get a normal action of all important organs, and consequently a healthy pabulum for nutrition. Usually the treatment is quite simple—a judicious bitter tonic with Iron, some of the means named hereafter to arrest the irritation of the lungs and cough, attention to the secretions, especially to the use of baths, stimulant or otherwise, to get a normal action from the skin, a highly nutritious diet, a cheerful mind, and exercise in the open air, the more the better, so it is not carried to exhaustion. I have started a patient to the Upper Mississippi with a small bottle of the Compound Tincture of Oil of Stillingia for the relief of cough, and seen him come back in perfect health; and have in other cases no worse, used everything that has been recommended and failed, because the patient had not energy enough to get well. Place the patient in the best possible condition for regaining his general health, and if normal digestion, assimilation and secretion is the result, he will get well; if not he will die.

In selecting our tonics and restoratives, we are governed to some extent, by their influence in other respects, as named below. Probably the best form of Iron will be the Tincture of Muriate of Iron with Glycerine, ℥ij. to ℥iv. which also forms a good cough medicine. The following table shows the relative advantage of different tonics and restoratives upon twenty-five cases in which they were administered:

	Considerably improved.	Slightly Improved.	Not improved.
1. Phosphorus	4	5	16
2. Liquor Potassæ	1	2	22
3. Hydrochloric Acid	11	6	8
4. Iodide of Iron	10	4	11
5. Iodide of Potassium	6	5	14
6. Chloride of Sodium	8	6	11
7. Vinum Ferri	13	3	9
8. Glycerine	4	2	19
9. Sesquichloride of Iron	12	5	8
10. Chloride of Potassæ	5	4	16
11. Quinine	7	5	13
12. Phosphoric Acid	3	8	14

It must not be forgotten, in estimating the therapeutic value of these different substances, that this is illustrated by the table rather comparatively than absolutely; since we must not exclude from its proper share in the result the combined influence of hope, rest, good diet, and general hygiene, under

which, even by itself, many phthisical cases are well known to undergo very considerable improvement. The figures, indeed, can only be taken as a fair expression of the comparative usefulness of the various agents as therapeutical auxiliaries to general treatment.

For the *cough* a great variety of means are used, some with well-defined indications, others empirically. The object is to quiet irritation, sometimes of the bronchial mucous membrane, at others of the pneumo-gastric nerve or its origin. If the cough is dry and harsh it is usually supposed that nauseant expectorants, as the Lobelia, Sanguinaria, etc., are indicated; and though this is often the case, it is not always the best plan of treatment. If administered they should be given in their least objectionable form, and at frequent intervals, until the desired object is attained. A much easier plan, if obtainable, is to give the patient a warm bath, at about 100 degrees, and, at the same time, allow him to inhale the vapor of warm water; thorough rubbing with a flesh brush or towel should follow, and perfect rest for some hours enjoined. One day with such treatment will accomplish more than a month with nauseant expectorants.

Sometimes it seems that the cough is rendered worse by too free secretion, which has thus to be removed. In this case stimulant expectorants, as the gum-resins, Senega, Squills, etc., are administered, with the expectation of lessening the cough as the secretion is diminished. It would not be profitable to repeat the many formulæ that have been employed, as the remedies are all in common use, and every Dispensatory or Materia Medica will give their combinations.

If the remedy for the cough can be so arranged as to answer the purpose of a tonic stimulant it should be done, as

℞ Tincture of Collinsonia,
Tincture of Achillea,, aa. ℥ss.
Simple Syrup, ℥ij. M.

Or, as an alterative and tonic—

℞ Tincture of Euonymus,
Tincture of Trillium.
Syrup of Lobelia, aa. ℥j. M.

The dose of each being a teaspoonful every three or four hours.

Remedies in small doses, to act principally upon the mucous membrane of the fauces and pharynx, answer a good purpose

in many cases where the stomach will not tolerate cough medicines, without so deranging it as to destroy the appetite. Amongst the most valuable of this class is the Compound Tincture of Oil of Stillingia, in drop doses on sugar, slowly swallowed; or, a preparation of

℞ Morphia Sulph., grs. j.
Guta Arabic, ʒj. M.

Triturate thoroughly, and divide into twenty powders; one to be taken without water as often as necessary; any narcotic may be used in the same manner.

All of the narcotics, Opium and its preparations, Conium, Belladonna, Hyoscyamus, Hydrocyanic Acid, etc., are employed in the latter stages of the disease to check cough. I have also used with advantage the Extract of Cannabis Indica and Pyroxilic Spirit, as follows,

℞ Spiritus Pyroxilicus, ʒij.
Ext. Cannabis, ʒj.
Mel., ʒij.
Aqua, ʒvj. M.

The dose being a teaspoonful every two or three hours.

Inhalations may be employed as named under the head of chronic bronchitis and laryngitis, and are often more serviceable than medicines taken by mouth.

Hectic fever and *night sweats* may be controlled by the administration of Tincture of Euonymus and Quinia, in the early stage of these symptoms. At a later period, we employ, for the night sweats, Gallic Acid in Essence of Cinnamon, Tannic Acid and Nutmeg, or the Aromatic Sulphuric Acid, in doses of from twenty to thirty drops, or equal parts of Nitric and Muriatic Acids in doses of ten drops, largely diluted with Water. The diaphoretic plan has answered a good purpose in some cases, as an infusion of Orobanche or Beech Drops, or the inner bark of the Platanus or Sycamore. The most efficient agent I have ever employed is the Oxide of Zinc, in doses of one grain, three or four times a day.

In some cases, the Quinine inunction will answer an excellent purpose, giving tone to the system, and arresting the hectic fever and night sweats, I usually prescribe it in this form:

℞ Quinine, ʒij.
Oil of Cinnamon, ʒj.
Lard, ʒiv. M.

To be applied with brisk friction.

The *diarrhœa* may be controlled at first by the usual remedies employed for that purpose. My favorites are the Sub-Nitrate of Bismuth, in doses of five grains, in Peppermint water, and the Epilobium in infusion. I have used the Aromatic Tincture of Guiacum, with Tannic Acid, with advantage, but prefer the means first named.

Inhalation may be employed with advantage in phthisis with bronchial complication. When there is great irritation, with persistent and harassing cough, the pulse frequent and the temperature high, I have employed an inhalation of Tincture of Veratrum occasionally, with a small portion of morphia.

When there is evident bronchial atony, with profuse secretion, an inhalation of Carbolic Acid is sometimes of marked benefit. The following prescription may be used:

℞ Carbolic Acid, grs. xl.
Water ʒiv. M.

Iodine is used in the same cases, and has been spoken favorably of, as relieving the cough, lessening expectoration, and arresting the hectic fever and night sweats. The patients will sometimes gain strength quite rapidly. The following is the formula:

℞ Iodine, gr. x.
Iodide of Potassium, gr. xiv.
Fluid Extract of Conium, ʒj.
Water, ʒiv. M.

In place of an inhaling bottle, we may improvise the apparatus in this way: Put a tablespoonful in a tin coffee or tea pot, set it in a vessel of boiling water, and let the patient apply the mouth to the top, and inhale the vapor as it arises.

We may sum up the curative treatment of phthisis in a few words: Employ such simple means as will check cough, impressing the patient with the necessity of exerting his will to control it. Give Iron with Glycerine as a restorative, occasionally adding the Hypophosphites. Control the circulation with small doses of Veratrum. Give a nutritious diet, selecting the food with reference to the production of heat, as well as to the formation of tissue. And lastly, and most important, let the patient live in the open air, and take as much exercise as he can, short of exhaustion.

HEMOPTYSIS.

Hemorrhage from the lungs is a very rare disease, except as the result of tubercular deposit; and though frequently made light of, I know of no symptom so certain. It is not, as popularly supposed, caused by the rupture of a blood vessel, or as some in the profession think, by their erosion during the breaking down of tubercle, for blood-vessels are not easily ruptured, and they yield to the ulcerative process so slowly that obliteration of their cavity takes place some time previously. Hemorrhage is, in a large majority of cases, an exudation from the blood vessels, and its probable cause is, compression of the veins by the tuberculous deposit, thus preventing the free return of blood to the heart. We have a similar instance in hemoptysis from disease of the heart, the free passage of blood from the lungs through the left auricle and ventricle being obstructed.

Symptoms.—Evidences of debility and frequently of disease of the lungs precede hemoptysis. There may be no seeming cause for it in some cases, coming on when the patient is sitting or lying still, or sometimes when asleep; but usually it is after exertion, or a fit of coughing. Varying in quantity, we find it sometimes raised by an act of coughing, at others it seems to flow to the upper part of the larynx, and into the pharynx, and is simply spit out. The blood is florid and somewhat frothy, differing materially from that in hemorrhage from the posterior nares and stomach. A small quantity of blood mixed with the secretions from the mouth and throat makes a very large show, especially when spit on cloths, or into a vessel of water, so that frequently there is not the cause for alarm that there might seem at first sight.

Sometimes the hemorrhage is preceded with chilly sensations, and a feeling of faintness, with occasionally a sense of oppression in the chest, and some dyspnœa. With its commencement the patient usually becomes much alarmed, which is increased by the excitement of those about, and this is usually the cause of the excessive prostration noticed. In but few cases is the hemorrhage in such quantity as to destroy the patient. Dr. Heberden states that in sixty years' practice he

had never lost a patient of it, and others testify to the same. The quantity of blood lost varies from a few drops to as much as ten pounds; the average quantity, possibly, being from one to ten ounces. When very free, it occasions much dyspnœa, and requires continuous efforts to free the upper air passages from it.

DIAGNOSIS.—Hemorrhage from the lungs is diagnosed by the bright florid character of the blood, its being frothy, and raised by an act of coughing or expuition. In some cases it is swallowed, or simply runs down the œsophagus, and coagulating in the stomach is removed by vomiting; here we have to be guided by the symptoms, the oppression of the chest, cough, dyspnœa and earlier appearance of the blood will determine its source. Bleeding from the posterior nares is more frequently mistaken for hemoptysis, but here the darker color of the blood, absence of air in it, the feeling of warmth posterior to the palate, and to its being removed by hawking, is sufficient for the diagnosis.

PROGNOSIS.—The prognosis is favorable as far as the hemorrhage is concerned, but unfavorable as regards permanent recovery. The greater the hemorrhage the more speedy the danger, usually, as we frequently see phthisis manifest itself with great rapidity after an attack of this kind. The prognosis is unfavorable when the hemorrhage is the result of heart disease, and it is only in those rare cases where it results from temporary congestion of the lungs, that we can assure the patient there will be no danger.

TREATMENT.—The patient should be immediately placed in the recumbent position, with the head elevated, and all physical and mental excitement avoided. But few persons should be in the room, which should be well ventilated and cool. If the feet are cold, a hot Mustard foot bath is very useful, and the warmth subsequently continued with a jug of hot water.

If no other remedy is at hand, a half teaspoonful of common Salt may be given every half hour, and, if palatable, a small portion of grated Nutmeg added to each dose.

The cases of hemorrhage may be easily grouped in two classes, *active* and *passive*. In active hemorrhage the pulse is full and strong, and the surface uniformly warm, whilst in

passive hemorrhage the pulse is soft and feeble, and the extremities cool. In the first case I should give the patient Veratrum in full doses, as—℞ Tinct. Veratrum gtt. xv, Water ℥iv; a teaspoonful every fifteen minutes at first, then every hour until the desired influence was obtained. In these cases as a means of preventing hemorrhage, or even of arresting it, small doses of Ipecac triturated with sugar, will be found efficient.

In passive hemorrhage I have placed great confidence in Carbo-veg., triturated and given in small doses. We can not see why charcoal should arrest hemorrhage, but of the fact we are well assured. When hemorrhage is feared, I give the first trituration (one to ten) of charcoal in grain doses every three or four hours. To arrest the hemorrhage it may be repeated every half hour. In this class of cases I would suggest the use of Rademacher's Tincture of Copper gtt. x to Water ℥iv, a teaspoonful every four hours, as an after treatment and as a blood-maker.

Gallic Acid in doses of from two to five grains is a good remedy, as is also an infusion of Lycopus Virginicus. The Oil of Erigeron has been extensively employed by Eclectics, and esteemed very highly. It is given in doses of five drops on sugar, every half hour or hour, if the hemorrhage is severe; the greatest difficulty in its use is the unpleasant influence on the stomach. Sulphate of Magnesia in half drachm doses with Sulphurous Acid, has been used with advantage, as has also Alum, in doses of two to five grains, with Gum Tragacanth, every half hour. Digitalis is used by some practitioners in doses of one grain every hour or two. If the hemorrhage is profuse, and the remedies named do not act speedily enough, apply ligatures to the lower extremities, and continue them almost to syncope; this will arrest the flow of blood and give time for other medicines.

The patient should be kept quiet for some time after the hemorrhage has ceased, and treatment adopted to counteract the ill effects of the loss of blood. The judicious administration of tonics, stimulants, and Iron are advantageous, as is also fresh air, exercise, change of scene, a nutritious diet, etc. As the patient is in constant dread of another attack, he should be furnished with the necessary remedies to check it, which gives him confidence. Instead, however, of using the

stronger medicines named, continually, it is better to put the patient on the use of an infusion of Lycopus, or tincture of Achillea, or Trillium. The Myricin, in connection with Hydrastine, in doses of one grain three times a day, is sometimes useful. One of the principal objects in the treatment is to prevent undue determination of blood to the lungs, by keeping free circulation to the skin and extremities; if this is attended to, there is but little danger of hemorrhage.

PLEURITIS.

The serous membrane enveloping the lungs, is not unfrequently the seat of inflammation, which, when occurring without disease of the lungs, is called pleurisy. A milder form occurs with pneumonia, and is termed pleuro-pneumonia, this has already been spoken of.

It will be recollected that there are two distinct pleural membranes, one for each side of the thorax, and that each of these consists of two parts, one investing the thoracic wall—pleura-costalis, the other enveloping the lung—pleura-pulmonalis. Hence we usually find the disease confined to one side, and not unfrequently to either the pleura-costalis or pulmonalis. Like all other inflammations, effusion occurs after a variable length of time, but as the structure is so delicate it is thrown off from the free surface, instead of being deposited in its tissue.

The inflammation having subsided, the effusion is absorbed, or in some cases becomes organized as a false membrane or adhesions.

SYMPTOMS.—Sometimes pleurisy is preceded for a short time by languor, headache, loss of appetite and derangement of the secretions, but usually there are no evidences of disease until the commencement of the chill or pain. A marked chill usually ushers in the disease; sometimes it is preceded by pain, at others, it is not; fever follows and is generally high. The pain is sharp and lancinating, increased when the thorax is moved, much easier when kept perfectly quiet. In consequence of this pain, we find the respiration short and hurried, and principally abdominal, as anything like a full inspiration produces excruciating suffering. A dry hacking cough at-

tends the disease, and is a source of great annoyance to the patient. Pleurisy is characterized by a hard, small, frequent pulse, running sometimes to from 120 to 140 beats per minute; the skin is dry and harsh, the urine scanty, tongue coated white, and bowels constipated.

These symptoms continue without change for from one to three days, unless arrested by treatment, when effusion taking place the pain is lessened, but the difficulty of breathing and other symptoms are increased. The fever now is markedly lessened, the pulse is still frequent, but has lost its hardness, the trunk is hot, but there is tendency to coolness of the extremities, the secretions are yet checked, there is still cough, and sometimes expectoration, the patient feeling very much prostrated, especially after a paroxysm of coughing. The difficulty of breathing is sometimes so great that the patient can not lie down; in such cases there is abundant effusion.

The disease may terminate fatally in the first or second stage. If in the first, the fever is very high, and the pain excruciating; the pulse is wiry and quick; respiration rapid, sometimes fifty per minute; delirium ensues, and the patient succumbs, usually within forty-eight hours. After effusion we find the patient losing strength, day by day; a low form of remittent fever is present, respiration is difficult, the patient has no appetite, and all the vital processes are impaired.

The physical signs noticed are, a sound of friction heard during the first stage; it is not constant, and has not been explained. Dullness on percussion over the most dependent portion of the affected side is present when effusion has taken place. If the effusion is of coagulable lymph, the dullness may extend over the entire seat of the inflammation. Diminished respiratory sound, with less motion of the thorax, is observed, and is in proportion to the amount of the effusion. If the ear is applied over the effusion, while the patient is speaking, the sound will seem tremulous, and is termed ægophony. If the effusion is serous, and to considerable extent, it will be noticed that the intercostal spaces are distended to a level, and in some rare cases, distinct succussion can be obtained by palpation.

DIAGNOSIS.—The sharp, lancinating pain, with difficult respiration, cough, and febrile action, is sufficient to deter-

mine the nature of the disease. The moderation of the pain, oppression of breathing, dullness on percussion, diminished respiratory movement, and ægophony, determine that effusion has taken place.

PROGNOSIS.—In the early part of the disease we can safely promise a favorable result in most cases; but where effusion has taken place, though the danger to life may not be increased, yet recovery will be retarded, and in some cases difficult.

POST-MORTEM EXAMINATION.—In the early stage of the disease we observe a congested state of the capillaries, and larger or smaller red patches, which sometimes become dark, and look like ecchymoses; still further, the pleura loses its smoothness, and becomes dull and opaque, the redness is more uniform, and small points or patches of a yellowish color make their appearance. Consequent upon these changes, we next notice the effusion, which, sometimes serous with some flocculi, is at others composed in considerable part of coagulable lymph, more or less organized and attached to the inflamed surface. If the disease has progressed for some time, we notice this lymph assuming various forms, sometimes as long, bridle-like adhesions, at others, close, like short areolar tissue, and again forming a false membrane, the surface being still free, or uniting them together so closely that it is difficult to separate them with the scalpel.

TREATMENT.—In the olden time three plans of treatment were adopted by Eclectics, all of them unpleasant, yet each of them good in some cases. In the first, an emetic combination containing Lobelia was employed, as the Compound Powder of Lobelia, or the Acetous Emetic Tincture. It would be given in small doses to produce profound nausea, and then carried to emesis. It would be indicated when the tongue was pallid and heavily coated at the base, and the patient complained of oppression at the epigastrium. In the second an emeto-cathartic of Podophyllin was employed, giving half a grain of the remedy with a grain of Capsicum every hour. It was a rough treatment, but very effective, when the tissues were full, and especially if there was venous fullness. In the third the spirit-vapor bath was employed to profuse diaphoesis. This was assisted by an infusion of Asclepias, Comp.

Tincture of Virginia Snake Root, or free draughts of cold water.

In place of these old-fashioned means (effective but unpleasant), we now use the specific remedies. Selecting the proper sedative as the basis—Veratrum when the circulation was very active, the pulse hard but not small, Aconite when the pulse was frequent and small—we would add to it any special remedy that might be indicated. In some cases the sedatives were freely used, as Tincture of Veratrum gtt. xx to xxx, Tinct. Aconite gtt. x, to the half glass of water; a teaspoonful every half hour.

Bryonia. This is a prominent remedy in pleuritis. The right cheek is flushed, pain in the head from forehead to occiput, and the pulse is remarkably vibratile. Add gtt. x of the tincture to the sedative.

Rhus. In this case the pulse has the sharp stroke, the patient cries out with the sharpness of the pain, which is paroxysmal, and there is the usual frontal pain and flushing of left cheek. Add of the tincture gtt. x to the sedative solution.

Macrotys. The pain has the rheumatic character, and is tensive, and frequently referred to the wall of the chest. Add of the tincture ℥ss to ℥j, to the sedative solution.

There are other remedies which exert a special influence in some rare cases, but they need not be named here. As the fever declines it is well to give one of the saline diuretics largely diluted, and also obtain a gentle action upon the bowels.

Cups to the affected part, or a sinapism, followed by hot fomentations, may be found useful.

CHRONIC PLEURITIS.

Under this head may be included those cases in which the acute symptoms having stopped, the disease continues without any very aggravated features; and those in which it commences slowly and insidiously, without any severe pain or constitutional disturbance, and in which measures are not adopted for its removal. These last cases are by far the worst, as there is danger of mistaking the affection, or considering it some unimportant matter, and thus neglecting proper treatment until extensive change of structure has taken place.

Symptoms.—Chronic pleurisy manifests itself by occasional, sharp, lancinating pains through the affected part, especially

after exertion, much talking, coughing, etc. We call the pain sharp and lancinating, but it may be more properly described as an intense, sharp soreness, which catches the part during inspiration, and stops the movement at once; the patient calls it a "stich in the side." In addition there is frequently soreness on pressure, or when the arm of that side is moved. Respiration is more frequent than usual and somewhat difficult; there is more or less of a hacking cough, sometimes dry, but very frequently attended with expectoration, sometimes copious.

The general health is markedly affected: there is loss of flesh and strength, the appetite is poor, bowels irregular, skin harsh and dry, pulse 96 to 100, and much iritability of the nervous system. Usually there is hectic fever in the evening and night sweats, sometimes as marked as in phthisis. In some cases, the inflammation terminates in suppuration; not only does the effused lymph break down into pus, but the serous membrane becomes a pus secreting structure from its free surface. In such cases there is marked cachexia and finally secondary abscess, which terminates the life of the patient.

DIAGNOSIS.—Chronic pleurisy is in some cases an obscure disease, and with difficulty diagnosed. The pain in the chest, and cough, point to the lungs as the seat of the disease; the location of the pain and its character serve to distinguish it from phthisis, which, in a very large majority of cases, affects the apex of the lungs. The dullness on percussion in different portions, and the change in the respiratory sounds evidence the amount of disease.

PROGNOSIS.—The prognosis will depend upon the extent of the disease, and the condition of the general health; as a general rule, it should not be considered unfavorable.

POST-MORTEM EXAMINATION.—The scalpel usually reveals sufficient lesions to account for death. We find the pleural membrane thickened, its surface dull and rough, more or less false membrane and adhesions, and a variable amount of fluid, sometimes serous, at others purulent. Occasionally the lung covered by the diseased pleura has suffered to a considerable extent; effusion has occurred in it, which breaking down may

have been the cause of death. Occasionally the effusion has been so great as to prevent any expansion of the lung, and we find it occupying a very small space near the mediastinum.

Treatment.—We study our case carefully in outlining a plan of treatment, to determine how we may restore the general health and functional activities, and how we may best get rid of local irritation and the results of inflammatory action. We want a right temperature, a good circulation and innervation, good secretions from skin, kidneys and bowels, good digestion and blood-making, and an improved nutrition. Thinking of these things which need be done, a good general treatment will suggest itself. Pain in the chest and cough must be relieved, that the lungs or body may have the necessary rest. Inflammatory products must be absorbed, or if this is not possible they must be removed by surgical interference.

If the reader will turn to the chapter on cough, pp. 332, 339, he will find how remedies are selected, and it will save repetition. The indicated remedy will relieve the cough. Certain agents act specially upon serous membranes, like Bryonia and Asclepias, but the remedy pointed at by the symptoms will prove the best.

The products of inflammation may be absorbed, and to do this we must get good secretion, not only from skin but also from kidneys and bowels. Baths are important, and they may range from the old-fashioned alkaline bath, sea salt, vapor baths, packs, to stimulant and tonic baths. Inunctions are sometimes useful, especially quinine and lard, where there is a tendency to periodicity.

The saline diuretics are useful in preventing absorption, and most excellent results are obtained from Acetate, Citrate, or Nitrate of Potash, given with considerable quantities of water.

The small Podophyllin and Hydrastia pill, one in the afternoon, cleans the tongue, clears the urine, and gives a regular motion from the bowels.

In this case I like counter-irritation, and advise the Thapsia plaster or the old-fashioned irritating plaster. It is best to use small squares, and carry it over the entire affected surface.

Should there be accumulations of pus, the sooner the thorax is opened and the pus removed the better. If you will turn

to a modern surgery, you will find that much success has attended operations upon the thorax, persons making good recoveries, when, otherwise, they must have died.

When dropsy is the result, we must treat it in the manner hereafter named, when considering that disease. Occasionally it is found necessary to remove the fluid by tapping, as is also the case in pyæmia. Should this be necessary in either instance, the best plan probably is to make the incision through the eighth or ninth intercostal space, just anterior to the angles of the ribs; and especially in accumulations of pus, remove the fluid with the syringe fitted to the trocar. In severe cases of this kind, it is recommended, after withdrawing the pus, to inject Tincture of Iodine, ℥ij, with Tepid Water, ℥iij; and increase the strength each time, until in some cases it may be used pure. Others recommend the drainage pipe of Chassignac, which has been employed in some cases with marked success.

COUGH.

It is true cough is but a symptom, and yet, in the practice of medicine, we find it very important to get rid of, and we study special remedies that control cough. Cough is a condition of unrest, and whether it has its source in the respiratory apparatus or on the outside of it—sympathetic—it is certain to perpetuate disease, and sometimes will produce it.

Cough is the effort to expel irritating substances from the respiratory passages, and would seem to indicate always an irritation of them. If there are irritant materials or gases in the air we inspire, a cough follows the sense of irritation, to expel the offending material. But the respiratory apparatus has but the single sense, and can not tell whether the irritation is from an irritant material or not, and the effort at expulsion follows all irritation.

The sensitive nerve of the respiratory passages is the pneumogastric, but this is associated with some filaments from the spinal cord and some from the sympathetic. We have already seen in whooping cough that an irritation of the medulla oblongata at the origin of the pneumogastric will give rise to

cough, and we will find many cases in which irritation of the peripheral branches in stomach, liver, spleen, small intestines, and even kidneys, will cause a cough. Spinal irritation will sometimes cause cough, and we may have a sympathetic cough from lesion of any part supplied by the sympathetic system of nerves.

All acute diseases of the respiratory apparatus have cough as a prominent symptom. If we commence above, we will find cough of a peculiar character with disease of the superior pharynx and posterior nares. It is associated with forced inspiration through the nose, the palate being elevated at the same time, and mucus is removed by an increased movement, the air being forced upwards from the lungs, and the pharynx and soft palate being relaxed. Recognize the situation of the trouble, and we cure the cough by making local applications to the diseased structures. Again, we find cough arising from elongated uvula, which resting upon the tongue excites irritation. In place of excising the organ, we use persulphate of Iron, or Hamamelis, and cure it. Cough may arise from diseased tonsils, these being a source of irritation. The patient states that cough is caused by "tickling in the throat," and when we make the necessary examination we have the evidence of disease. Here local applications are made to the tonsils, the irritation is removed and the cough cured. Occasionally the irritation is of the base of the tongue, or the little folds that connect it to the epiglottis, (*fræna epiglottidis*) or the little saculi between or at the side of them. I recall a case in which a small spicula of bone lodged in one of them, and the patient had the most extreme paroxysms of cough, causing hemorrhage and really endangering the lung. This continued for ten days before the cause was detected and removed. In another case there was irritation or subacute inflammation, and rest was obtained by painting the part with nitrate of silver. We may say, therefore, that irritation of the throat and fauces are to be looked for as possible causes of cough.

We have already studied the diseases of the lungs, bronchial tubes, parenchyma of the lungs, and pleura, of which cough was a symptom; and whilst we have found that the removal of the disease was an efficient means of getting rid of the cough, we have also found that arrest of the cough was many times an important means of removing the disease.

But we occasionally find cough arising from something implicating the recurrent laryngeal and phrenic nerves. Of the first I may note that temporary enlargement and irritation of the thyroid gland in girls is common, associated with some wrong of the menstrual function. The cough may be quite severe, the ordinary cough medicines useless, but it will be cured by remedies restoring or correcting the menstrual function. I have seen two cases of cough with most marked difficulty of respiration (paroxysmal), caused by disease of the phrenic nerves. In the one case it was evidently a deep-seated rheumatic inflammation, and the ordinary treatment for rheumatism removed it. In the other it was due to scrofulous engorgement of the deep cervical lymphatics, and was corrected by Acetate of Potash internally, and Aurum Tryphillum externally.

From Diseases of the Heart. Diseases of the heart, both functional and structural, are sometimes the cause of cough. Irregular action of the heart, præcordial oppression, pain, fear of impending danger, or any of the ordinary symptoms of heart disease, should be well considered, and it will frequently be found that the remedies for the heart disease will be the best remedies for the cough. Structural heart disease, impairing or deranging the circulation in the lungs, will sooner or later give rise to cough. Hypertrophy of the heart from aortic contraction, giving an increased impetus of blood to the lungs, as well as disease of the mitral valves, preventing a free circulation from the lungs, or mitral deficiency, permitting the blood to be thrown back, will cause disease of the lungs, and cough as a symptom.

Aneurism of the arch of the aorta, or of the inominate artery, or the left subclavian, or carotid, may give rise to great difficulty of respiration, and cough is a symptom. Whenever a person otherwise in good health complains of gradually increasing difficulty of respiration, and a sense of pressure and obstruction, and cough, we should examine the thorax carefully with reference to the possibility of aneurism. The peculiar fremitus on auscultation will tell the story.

From Diseases of the Digestive Apparatus. It is well known that we may have cough and other symptoms of disease of the respiratory organs, from disease below the diaphragm. A "stomach cough" is recognized by old ladies, though often

overlooked by learned physicians; and there is such a thing as a cough from the liver and spleen, as well as a "worm cough." We have already noticed the anatomical reason for this, and he will be very blind who can not see it. These diseases are almost always chronic, and the cough is also chronic. In some cases it may be accounted for by pressure, as when a stomach constantly distended by gas is pressed against the left lung; or a hypertrophied liver is crowded upward into the right side of the thorax. Here a physical examination might deceive, for in the one case percussion over the left floating ribs would give marked resonance, and one might suspect a cavity; and in the other, the marked dullness of the lower part of the right thorax might be supposed to indicate deposit.

In chronic cough, if there is not marked loss of flesh and strength, and direct evidence of local disease, it is well to look on the outside—indeed it is well in every case. Not finding sufficient disease of the respiratory apparatus to account for it, we will find an irritative dyspepsia or chronic gastritis, or some wrong of the liver or of the small intestine, which without any reference to the cough should be righted, and being cured, the cough stops.

Sympathetic Cough. We may have cough arising from disease of any part supplied by sympathetic nerves, as already noted, and this gives us some very singular forms of disease. It is a little unpleasant that the person suffering from hernia should find that he has a cough just at the time when the hernia is so irritable that it will hardly bear the pressure of the truss. The sufferer from orchitis is annoyed by a cough arising at just the time that it will give him the most pain. The woman suffering from uterine disease may have a cough when the structures become so sensitive that the succussion gives great pain; and the sufferer from persistent headache finds his sufferings greatly increased by a cough.

What I have stated here is only suggestive, but if it leads to a careful examination, by which only diseases can be detected, and the cause determined, there will be little difficulty in adopting a right treatment.

Remedies for Cough. We may profitably study a few of the remedies for cough in this place, though most of them have been named in the treatment of diseases of the respiratory

apparatus. But as we well know, it requires frequent repetition to impress facts upon our minds. Let us think of the two-fold treatment—"remedies that remove the disease will remove the cough, and remedies that remove the cough favorably influence disease." The first is especially applicable to acute, and the second to chronic disease. If, for instance, we find a cough associated with increased temperature, a frequent pulse, arrest of secretion, and impairment of innervation, we conclude at once that remedies which will rectify these wrongs will relieve the cough. One might think that this was a very natural conclusion, and yet we find that many practitioners do not reach it, but commence with special remedies called expectorants.

In studying the old group of *expectorants* they were divided into two prominent classes—nauseant or relaxant, and stimulant. If there was arrest of secretion, the first class would furnish the remedies; if there was profuse secretion, they would be drawn from the second group. Once in a while we go back to these old remedies and select them in this way. But the trouble in their use is that they do too much. If there is dryness of the respiratory passages, and we give the "nauseant expectorants," we are pretty sure to get a too abundant secretion; so in some cases the stimulants do too much, and arrest the secretion, or make it difficult of removal. Let me record it that *expectoration* is morbid, not natural; that a profuse secretion of mucus or muco-pus is not essential to recovery, but is produced by impairment of the life of the part, and leads to further impairment.

Lobelia. I prefer to use Lobelia for its stimulant action, rather than as a nauseant expectorant. If there is a sense of oppression and feeling of fullness, I should prescribe this remedy without reference to the arrest of secretion. As we have already seen, it is the remedy in asthenic bronchitis, especially of children, with profuse secretion and difficulty in removing the accumulations. Let me repeat the formula for the child: ℞ Tinct. Lobelia (seed) ʒj, Comp. Tinct. Lavender ʒiij, Simple Syrup ʒiss. M.

Ipecacuanha. Giving up the old use of Ipecac as a nauseant, let us employ it as a remedy for that irritation which prompts an almost continued effort to free the larynx by cough. It may be a case of inflammation, as in infantile

pneumonia, or it may only be a cough, but with this symptom the remedy is very effectual. It may be triturated with sugar or sugar and gum arabic, and given in small doses, or the tincture may be prescribed in water.

Sanguinaria. I prefer the nitrate of Sanguinaria to any other preparation, as its action seems better, and it is more easily carried and dispensed. One grain to four ounces of simple syrup makes a very good preparation, and when dispensing from my pocket case I add it to water in the same proportion. The indication for it is a sense of constriction and tickling in the throat.

Tartar Emetic. But you don't use any antimony, do you? O no, I get along very well without it, but should you wish to use it, I will name the cases and the quantity. If there is hoarseness with tenderness of the larynx, you have a marked case; or if the cough is hollow and reverberating, and there is evidently want of power in it, you have the other. Triturate the remedy with sugar, one grain to one drachm, and divide in forty powders, giving one every two or three hours. You could hardly kill any one with this, though if a child we would make the dose still smaller.

Belladonna. Belladonna is a cough medicine as well as a remedy for congestion, as we have already seen whilst studying whooping cough. The indication is the usual one—dullness and inclination to sleep.

Drosera. Drosera is the remedy for the cough of measles, and for any cough that simulates it. This cough, it will be recollected, is paroxysmal and explosive. The proportions are—℞ Tinct. Drosera ℥ss to ℥j, Water ℥iv; a teaspoonful every four hours.

Nitric Acid. Nitric Acid is frequently an admirable cough remedy, and will quiet irritation when others fail. If now we should stop there, how would one know when to use it? But if we say whenever the tongue shows the marked *violet* color, we use Nitric Acid, any one can select the cases for the remedy.

Stillingia This is a most valuable remedy for the relief of cough, and for some of the most intractable forms. The irritation seems to localize itself just back of the posterior pillars of the fauces, and sometimes above the soft palate, though there may be disease of any part of the respiratory apparatus.

In ordinary prescribing the tincture of Stillingia may be added to any cough mixture; or it may be prescribed with simple syrup; or it may be dispensed in water like other remedies. We have already called attention to the Stillingia Liniment as a most valuable remedy.

Sticta Pulmonaria. This is a most valuable remedy, and if the characteristic indications present, it will speedily check a cough. There is pain in the shoulders, passing up through the neck to the occiput; the cough is frequently violent, and so harassing as to prevent rest. ℞ Tinct. Sticta gtt. x to ʒss, to Water ʒiv; a teaspoonful every two or three hours.

Macrotys. With pain, evidently in the thoracic walls, rheumatic in character, I use macrotys as a cough remedy.

Collinsonia. We have found that Collinsonia was a remedy for irritable larynx, ministers' sore throat, and chronic laryngitis. But we have disease of other parts of the respiratory apparatus in which the use of the voice brings on cough. Let us try the Collinsonia in these cases.

Grindelia. We will think of this as a possible remedy for asthmatic cough, and as a pretty certain remedy for a chronic cough associated with profuse leucorrhœa, or with a discharge of mucus or muco pus with triple phosphates in the urine. This is rather a singular indication for a cough medicine, but it will be well to note it. The dose will vary from one to ten drops.

Bromide of Ammonium. In the study of whooping cough we found that this was the remedy for an epileptiform cough, and in treating children I would suggest its use when the slightest involuntary movement of muscles is observed.

Cactus. Cactus is a remedy for cough when associated with præcordial oppression and irregularity of pulse.

Pulsatilla. Dizziness, fear of impending danger, and the condition of mind designated as nervousness, suggest this remedy.

This only names a few of the many remedies that will influence a cough, but it will suggest the method of selecting the right remedy. The rule in all cases is, "Give the remedy called for by characteristic symptoms," and in this way we can hardly make a mistake.

Remedies that influence the Fauces. For the temporary relief of cough we frequently employ remedies in such form that

they influence the fauces or throat, and find it much better than their internal administration. The simplest way is to use a lump of sugar, and drop the remedy upon it, as has been named for the Stillingia Liniment. Equal parts of sugar and gum Arabic form a very good basis for the administration of remedies, and will sometimes quiet a cough themselves by their demulcent action. The powder is allowed to dissolve slowly in the mouth, and then swallowed. Any thing that may be thought useful may be added, as Chlorate of Potash, Alum, Borax, Aconite, Morphia, Lobelia, Stillingia, etc.

Remedies by Inhalation. Remedies by inhalation exert a direct influence upon the respiratory mucous membrane, and are sometimes used with great advantage. Volatile agents may be inhaled from the old-fashioned glass inhaler, or from a glass tube in which a loose sponge has been placed, the remedy being dropped upon this. The latter method is a very good one. Some of the remedies are burned and the gases or smoke is inhaled, as is the case with the many "burners" used for asthma. Others being more volatile are used with the spray apparatus or atomizer, and the finely divided fluid is carried into the lungs with the respired air. It is not necessary to give formulæ for these here.

CHAPTER IV.

DISEASES OF THE CIRCULATORY APPARATUS.

The diseases of this portion of the body have not been as thoroughly studied as those of other parts, probably on account of the obscurity of the symptoms. They are worthy of close attention, however, as, contrary to old authorities, they may be diagnosed with much accuracy, and treated with success.

DISEASES OF THE HEART.

The heart, the center of the circulatory apparatus, and the source of motive power for the circulation of the blood, is subject to both *functional* and *structural* or *organic* disease. It is only within the last century that much attention has been directed to diseases of this viscus; and, although there is great difficulty in their investigation, yet our knowledge of many of them is pretty thorough.

With these, as with all other diseases, it is necessary, in order to make a correct diagnosis, that the structure and relations, as well as the physiological action of the organ, should be perfectly understood; we must know its healthy condition before we undertake to detect pathological change either in function or structure. This knowledge may be obtained, in some degree, from books—that is, from anatomical works, we learn the minutiæ of its structure; from physiological works, its function—but he who depends altogether on books to obtain a knowledge of either anatomy or physiology will be but very poorly instructed. In order to become a good anatomist, it is necessary that personal dissections and examinations be made; so in physiology, where possible, personal investigation is highly necessary. To illustrate this, it is only necessary to

refer to the sounds produced by the heart's action, one of the most important means of diagnosing structural disease. A physician, depending upon books for his knowledge of the natural sounds, would be entirely incompetent to detect an unnatural or morbid sound. This practical knowledge of the workings of this most complicated mechanism—man—can only be obtained by close and long-continued study. The eye, the ear, the touch, as well as the other senses, must be educated, so as to determine what is a physiological condition, and the slightest variation from this. It is this careful education of the senses, in addition to a thorough medical education, that makes the good physician, and gives him an eminent position in the profession.

OF THE STRUCTURE AND RELATIONS OF THE HEART.

We notice the structure of this viscus here, in order that we may fully understand the nature of the diseases to which it is subject:

1. The heart is a muscular organ, and hence this tissue is subject to the same affections as other muscles,—*a*, to inflammation; *b*, to hypertrophy; *c*, to atrophy; *d*, to degeneration; *e*, to rheumatism; and *f*, to spasmodic action.

2. It is invested with a serous membrane,—*a*, liable to inflammation; *b*, adhesions; *c*, morbid growths; and *d*, effusions within its cavity.

3. Within its cavity we find fibrous tissues, the chordæ tendinæ, the base of the valves, and the interior structure of the valves, liable, principally,—*a*, to alterations of structure, and *b*, to fibroid growths.

4. It is lined by a membrane, resembling the serous membranes in many respects, which is liable,—*a*, to inflammation; *b*, to morbid growths and change of structure.

We find important nervous connections between it and other organs: 1st, with the entire sympathetic system of nerves, establishing a sympathetic relation between it and all parts of the body supplied by these nerves—we might specially note the stomach, digestive canal, chylopoietic viscera, the urino-genital organs and lungs; 2d, with the spinal cord, through the fibers of communication between it and the sympathetic ganglia; 3d, with the medulla oblongata through the pneumo-

gastric nerves, and hence with the brain and all parts to which this portion of the spinal cord sends nerves. It is also influenced by the condition of the blood, not only by that which is distributed to its own tissue, but also by the mass that passes through the cavities; and by the physical condition of the arteries and veins, especially by any obstruction to the passage of blood through them. From these considerations, it is not strange that the viscus should be diseased, but that disease of it should be so unfrequent.

FUNCTIONAL DISEASES OF THE HEART.

Functional diseases of the heart may be divided into four classes:—1. Enfeebled action; 2. Irregular action; 3. Excited action; 4. Neuralgic affections.

ENFEEBLED ACTION OF THE HEART.

The action of the heart may be enfeebled by organic disease effecting a change in its structure, the feeble action being but a symptom. This, however, and the means of diagnosis, will be considered hereafter. We wish here only to consider it as it occurs without any lesion of this viscus. Two principal causes may give rise to this condition: 1st. An anæmic condition of the system, from whatever cause produced; 2nd. From want of proper innervation. In the first instance, the cause is obvious, the diagnosis easy, and the indications of cure plain.

Where want of proper innervation is supposed to be the cause, it becomes necessary to closely examine the patient, and ascertain, if possible, the lesion giving rise to this, and whether it is consequent upon debility of the cerebro-spinal, or sympathetic nervous systems. We sometimes observe cases of chronic disease, in which we can detect no lesion of digestion, assimilation, or excretion; and in which there is no apparent debility of the cerebro-spinal nervous system, but in which, although all the functions appear to be well performed, the patient is unable, from debility, to follow his usual avocation. These cases are probably rare, but yet occur sufficiently often to merit attention. My attention has been directed to the subject, from the occurrence of two such cases in my practice; a description of one of which may not prove uninteresting:

Mr. G. T——, æt. thirty-five, sanguine lymphatic temperament, stout, heavy-built, with every appearance of good health, was affected with chronic laryngitis through the spring of 1857. In June he applied to me, and by the use of ordinary measures, the disease was nearly subdued in the course of a month. At this time I noticed that the pulse was weak; that there appeared to be difficulty in the circulation of the blood, and a tendency to congestion in various parts of the body; although at the same time the patient was stout and fleshy, the muscular system well developed, and digestion and excretion normal. Through the months of August and September, he had frequent attacks of almost entire muscular prostration, lasting from fifteen minutes to one or two hours; the recovery from them being gradual. These almost invariably commenced with a feeling of fullness of the chest and pressure over the heart, the pulse being very feeble. These attacks so increased in frequency, and the consequent debility was so great as to entirely preclude him from following his trade. A close examination of the heart and lungs, showed conclusively to my mind, that the viscera of the thorax were in a healthy condition. There was no tenderness in any part of the spinal column, nor any symptoms of affection of the brain; the appetite was good; bowels regular; and the secretions of the skin and kidneys normal. In fact, after the most careful examinations of the case, by myself and others—watching it closely for months—I could detect no disease, to account for the symptoms, but the continued impaired action of the heart and weakness of the circulation, which undoubtedly arose from deficient innervation, the sympathetic nerves and ganglia supplying the heart being affected. This patient has entirely recovered.

Several mild cases have come under my notice, in which other disease was aggravated from this cause. In a majority of them, probably, there was deficient innervation in all organs supplied from the sympathetic system of nerves.

TREATMENT.—In this, as in other functional diseases, we find that the administration of special remedies, to relieve the unpleasant symptoms, are very important. When given in small doses, they all strengthen the innervation of the heart; and in time will improve its nutrition. The Cactus Grandi-

florus stands first, in its influence upon the heart. We administer it in the following form:

℞ Tincture of Cactus, ʒj.
Water ʒiv. M.

A teaspoonful every four hours.

If there is much derangement of the nervous system, manifested by feelings of dizziness, oppression, impending danger, etc., constituting the most disagreeable features of functional heart disease, I prefer Pulsatilla, using the Tincture with water, in the proportion named above for Cactus. Or in some cases the remedies may be used at the same time, alternated.

In feebleness, with frequency of pulse, I associate the Digitalis or Veratrum with the Cactus. Among the most pronounced heart stimulants is Nitro Glycerine. Of a one per cent. solution, one drop may be given every three hours. No dangerous results are observed to follow its use.

Where debility or weakness of the heart's action depends upon anæmia, it will, in a majority of cases be removed by the judicious use of tonics and Iron, the indications being to restore the normal quantity and quality of the blood. When it depends upon loss of nervous energy, the indication is to restore this; and here we find our therapeutic resources exceedingly meagre. It will probably be found, in a majority of cases, that the urine persistently contains an increased amount of the phosphates; which almost invariably occurs with a depressed state of the nervous system. From this fact I was led to employ the phosphates in the two cases above named, as well as in analogous cases; and so far, with the best results. I might premise, however, by stating, that it is indispensable to success, that if the stomach and bowels be disordered, if there is indigestion, or the different nutritive processes are impaired, the attention must first be directed to these. At the same time, it is highly necessary that we have a normal action of the kidneys and skin. Having accomplished this, we may resort to measures to restore the deficient nervous force. Prominent among agents to fulfill this indication, I may name the different preparations of the Phosphates. I prefer the Hypophosphite of Lime, though the Phosphate may be used with advantage, or even finely powdered bone. These agents will have to be continued for a considerable length of time before much apparent advantage is gained; thus, in giving the Hypophosphite

of Lime in five grain doses, three times a day, in my worst case, it was some six weeks before I could perceive any improvement; yet after this there was perceptible improvement each week. With the agent just named, I employed the Hydrochlorate of Ammonia in the same doses, the patient using a bath of the infusion of the bark of Quercus Alba, with brisk friction, twice a day. The Extract of Nux Vomica, given in the usual doses, gave temporary relief, as did Belladonna. Tonics and Iron appeared, if anything, to increase the disease. Moderate and continued exercise—as much as the patient could bear, without inducing symptoms of exhaustion—was always beneficial; as was also pleasant and agreeable company.

IRREGULAR ACTION OF THE HEART.

This, in a mild form, is quite a common affection, in persons of an irritable and debilitated habit. "The pulsations may be unequal in frequency and power, or they may be intermittent, reiterated, or fluttering. This state of action, although attending various dangerous diseases of the organ, may be entirely nervous, or connected with depressed organic nervous power, and enfeebled action of the stomach and bowels." We observe it, sometimes, as a symptom of dyspepsia; especially where the disease has continued for a length of time in persons of a nervous habit. It is also a symptom in chronic inflammation of the lungs, where it has been of such extent as to prevent the free passage of the blood. It may also proceed from mental emotions, and from long-continued and severe mental labor; especially in cases where the mind is troubled, as from want of success in life, etc. Probably the most frequent cause, when it is severe, is long-continued disease of the organs of generation, especially sexual excesses and masturbation. The disease arising from these latter causes frequently assumes a serious form, attended with a sense of weight, of sinking, or oppression, or anxiety, at the præcordia; dizziness, vertigo, singing in the ears, dimness of vision, etc. In severe cases, the pulse will rarely be found normal, either in frequency or regularity; sometimes soft, fluent, easily compressed, but the pulsations extremely irregular; at others, hard, sharp, quick, dicrotous, or intermittent.

In a majority of these cases, there will be found—especially if it has arisen from sexual derangement—tenderness on pressure, over the first and second cervical vertebra; and also over the last two; and, frequently, the patients will complain of a heavy, dull, aching pain in the back part of the head, or, at least, of a sensation of weight and soreness.

TREATMENT.—It is very important, here, that a correct diagnosis be made,—that we do not treat this symptom of organic disease as a nervous affection. Having decided that it is nervous, the next point to determine is, what has been the cause of it. If it has arisen from irritation, a disordered state of the stomach and bowels—and this is generally easily determined—the removal of the primary disease will be succeeded by the cessation of this symptom. If from any cause retarding the flow of blood, and consequent overloading of the cavities of the heart, we remove the cause if possible, and this symptom will in all probability cease. If from severe mental labor, such measures should be adopted as will give rest to the over-worked organ, and restore the natural tone of the system. If from sexual excitement, this must be controlled; and if from masturbation, the cause must be arrested, or but little good can be accomplished. Present relief may be given in these cases by the administration of Cactus, as named in the preceding disease. In a use of the remedy, extending over twenty years, I have not known it to fail. When there is the severe nervous disturbance that attends many of these cases, the Pulsatilla may be alternated with it. And if there is at the same time frequency of pulse, with feebleness, the Digitalis or Veratrum can be occasionally employed in alternation with the first named, with advantage. In all cases, it becomes necessary to adopt measures to restore the general health, as the exhibition of the bitter tonics and Iron, the use of easily-digested and nutritious food, exercise in the open air, the daily bath—especially of some bitter infusion, as Cinchona, Hydrastis, Cornus Florida, etc., with brisk friction. It is also necessary that we pay especial attention to the secretions of the kidneys, bowels, and skin; for if we expect to restore the tone of the system, we must have a normal action of the excretory organs. In all cases, where there is tenderness on pressure over the cervical vertebra, or weight, or pain, or sore-

ness in the back part of the head, counter-irritation over the cervical region will be found of the greatest importance. I employ the irritating plaster, not as it is generally used, but by applying it for two, or three, or four days, or until it commences to be painful; then removing for twelve or twenty-four hours; again applying it, continuing it in this way, without producing suppuration. It may also be applied over the region of the heart, in the same way. As internal remedies, in addition to tonics and Iron, I know of none better than the Nux Vomica, Iodine and Hydrastia, as in the following formula:

℞ Ext. Nux Vomica,
Iodine, aa. grs. vj.
Phosphate of Hydrastia, ℥ss. M.

Make thirty pills; dose, one two or three times a day.

When there is debility of the nervous system, the Compound Syrup of the Hypophosphites may be used. The additional means recommended for palpitation of the heart, are also often appropriate.

EXCITED ACTION OF THE HEART.

This is defined by Dr. Copland, as "strong, frequent, or tumultuous action, with an increase of the impulse and natural sounds of the heart, so as to be sensible, and often distressing, to the patient, without appreciable lesion of the structure of the organ." Palpitation is a frequent symptom of some of the serious organic affections of the heart, to be hereafter described; hence, the diagnosis must be carefully made.

Causes.—Many causes may give rise to temporary palpitation of the heart; but it is only those cases in which palpitation is severe, long-continued, recurring frequently, and attended by manifest disease of the system, that we wish to consider. Three pathological conditions of the system may give rise to this disease: 1st, a change of the quantity or quality of the blood; 2nd, irritability of the muscular fiber of the heart; and, 3d, irritation of some part of the nervous system; the last condition being much the most frequent cause.

Symptoms.—Palpitation is frequently sudden in its occurrence, coming on after, or during, over-exertion—sometimes

the slightest exercise will give rise to it—or after, or during, any mental emotion; sometimes it comes on slowly, increasing in intensity gradually. The action of the heart is strong, sometimes labored; the natural sounds frequently increased in intensity, sometimes so as to be audible without placing the ear to the chest. The impulse of the heart against the parieties of the thorax is always perceptible when the hand is placed upon the chest; in severe cases, it may be noticed by the eye, so that the pulse may be counted without approaching the bedside. The patient generally complains of a sense of weight at the præcordia; sometimes pain, with difficult respiration, or sensation of smothering. Sometimes, when the action is excessive, it is irregular, tumultuous, and attended by distressing anxiety; sense of sinking, or anguish, at the præcordia; and by extreme restlessness, and a feeling of impending dissolution. The paroxysms may be of short duration, from a few minutes to one or two hours; or, they may continue for twelve, twenty-four, or even forty-eight hours. They mostly recur at irregular intervals, though sometimes they are periodic, occuring at regular periods.

DIAGNOSIS.—In general it is quite easy to determine whether or not the palpitation depends upon organic disease of the heart, if the patient be examined when the paroxysm is off. In organic disease, when palpitation is induced, the extended dullness on percussion, the morbid or adventitious sounds, the more or less constant dyspnœa, nervous congestion, bloated countenance, dropsical effusions, etc., will determine the case.

TREATMENT.—If produced by alteration in the quantity or quality of the blood, our measures should be directed to the attainment of a normal condition of this fluid. In nearly all cases, we find deficient action of the excretory organs, and consequent retention of excrementitious materials. By the use of the alkaline bath, or cold bath, if the skin is harsh; or a bath of an infusion of the bitter tonics and astringents, if it is relaxed or flabby, we obtain normal excretory action. The diuretic salts, in small doses, will increase the excretion of the kidneys. The bowels should be kept in a soluble condition with mild laxatives. Then, the stomach being in a normal condition, by the use of bitter tonics and Iron, nutri-

tious food, and moderate exercise in the open air, we increase the quantity and quality of the blood.

In severe cases we may arrest the palpitation by the use of Lobelia. I prefer the tincture of the seed, and have found one dose of gtt. xv to ʒss, when of unusual violence to answer the purpose. I have employed Cactus for the same purpose, and though not so speedy in its action in many cases, it is very certain. In the treatment for the permanent arrest of the palpitation, I employ it as named in the preceding disease. The Pulsatilla will be found available in the class of cases heretofore named, when there are the unpleasant nervous symptoms.

In those cases where the disease is undoubtedly owing to increased irritability of the muscular fiber of the heart, or irritation of the nerves supplying it, we use means to remove these conditions. First, if this irritability has been produced by sexual excesses, or masturbation, we direct treatment for the relief of this excitation of the organs of generation. In such cases, and also in many others, we will find tenderness on pressure at the base of the brain and over the cervical vertebra. Here the irritating plaster, continued until the tenderness is entirely removed, is one of our most efficient measures. The use of small doses of Gelseminum, Aconite, especially Lobelia, infusion of Scutellaria, and Veratrum, is peculiarly serviceable. The irritating plaster, applied over the region of the heart, will also, in many cases, afford great relief. Hypophosphoric Acid, with small quantities of Sulphur, prove very efficient, when there is accompanying irregulariry of the pulse.

NEURALGIA OF THE HEART.

This affection is considered as but a modification of angina pectoris; yet it differs from that in many of its symptoms, which go to show that the nerves of adjoining viscera are more or less affected. The disease is somewhat rare. I have seen but one severe case, and one in which the symptoms were comparatively mild.

Symptoms.—The disease frequently comes on slowly, the patient, for two or three days or more, complaining of a feel

ing of tension and dull aching in the region of the heart, with occasional sharp, piercing pains, which last but for a moment. When fully developed, there is a most acute, lancinating pain passing from under the left nipple, backward to the spine, frequently radiating to the left arm, left side of the neck, and adjacent viscera. The paroxysms of pain are almost instantaneous in their accession, lasting from a few minutes to an hour or more; when long continued, there are intervals of comparative ease, in which there is nothing but a feeling of tension and a dull aching. The disease is intermittent, recurring sometimes once or twice a day; at others, not for several days.

During the paroxysms the action of the heart is frequently accelerated, sometimes irregular, rarely slow and labored. There is no morbid sound, unless the patient is somewhat anæmic, when there is a slight *bellows*-sound on auscultation; respiration is rarely affected. The general health of the patient is frequently impaired at the commencement, or, if not, becomes so in a short time; the appetite is variable and capricious, bowels constipated or irregular, skin and kidneys fail to act properly, patient nervous and irritable, etc. Copland remarks, that the disease is of long duration; the shortest period in his cases was six or seven months; in one, where the interval between the attacks was long, it was many years.

CAUSES.—In some cases we are unable to detect any predisposing cause; in many, however, there has been noticed an impairment of the general health, with derangement of the nervous system, produced by great and long continued emotional excitement, or by continued excesses. The exciting causes are such as produce neuralgia of other parts.

TREATMENT.—For the relief of the paroxysm, the treatment is simple, but most efficient:

℞ Tincture of Lobelia, ʒj.
Tincture of Macrotys, ʒss. M.

Give gtt. x, every ten minutes, until nausea is induced.

Apply a sinapism to the præcordia as hot as it can be borne, and use the hot Mustard foot-bath.

The treatment for a radical cure varies greatly, according to the condition of the patient and the peculiar character of the disease. I might say, treat the patient on general principles;

but this would be indefinite, and some have no principles in medicine. If the paroxysms recur with regularity, the patient living in a malarious region, we would expect to use Quinia with great advantage; and it would undoubtedly, in some cases, arrest the disease at once. Such cases, however, are rare. In all cases, normal action of the excretory organs should be obtained; the appetite and digestion, as well as the quantity and quality of the blood, improved by the judicious administration of bitter tonics and Iron, exercise in the open air, avoidance of emotional excitement, and a carefully selected diet. If there be nervous exhaustion, the use of the Hypophosphites, with a small portion of Sulphur and Quinia, is very beneficial. To prevent the recurrence of the paroxysms, the agents named for its relief would be efficient, as:

℞ Tincture of Lobelia, ʒj.
Tincture of Macrotys, ʒss
Tincture of Gelseminum, ʒss
Tincture of Aconite, gtt. x.
Water, ʒiv. M.

Of which a teaspoonful might be administered three or four times a day.

In many cases there will be found tenderness on pressure, over the cervical vertebra, which should be removed by counter-irritation. The irritating plaster, applied over the region of the heart, has also proven beneficial.

ANGINA PECTORIS.

This disease was first fully described and named by Dr. Heberden, in 1768, though obscure descriptions of it may be detected in the earliest medical writings. The heart is the organ principally implicated, though the respiratory organs are always involved. Much difference of opinion has existed in regard to the nature of the disease, some taking the ground that it was invariably caused by organic disease of the heart or arteries; others, that it was essentially a nervous affection. Post-mortem examination shows, that in a majority of cases, there is structural lesion of either the heart or large arteries, but in others, no such lesions exist. In forty-five cases, examined by Dr. Forbes, thirty-nine exhibited disease of the heart or great vessels; there was ossification or thickening of the coronary arteries in sixteen cases; ossification or other

disease of the *valves* in sixteen cases; ossification or dilatation, or both, of the aorta, in twenty-four cases; and in twelve cases there was preternatural *softness* of the heart. If we were not well aware that such lesions are frequently found in old persons, who have never exhibited the slightest symptom of the disease, we might look upon them as the proximate causes. I will, therefore, describe it simply as a nervous affection.

SYMPTOMS. — Angina pectoris is sometimes preceded by derangement of the digestive organs, deficient action of the excretory organs, and more or less oppression of the respiratory organs, which is generally spasmodic; but it as frequently occurs without any premonition when the patient is walking, especially when ascending a hill or flight of stairs, or at work, or during emotional excitement, or, in the chronic form, even when asleep.

In severe cases the patient is seized with painful constriction of the chest, especially in the cardiac region. The pain extends to the left arm, sometimes even to the tips of the fingers, and amounts to excruciating agony. It is accompanied with an almost intolerable sense of suffocation, convulsive dyspnœa and palpitations; always with extreme anxiety and a sense of impending dissolution. When attacked, the patient strives to grasp some object to support him, and immediately stands still, feeling that motion would produce an entire suspension of living power. During the paroxysm there is flatulent distension of the stomach, with a feeling of irritation, which is relieved by eructations. The pulse is generally weak, irregular, or intermittent, sometimes but little changed; rarely full, active and bounding.

The paroxysm continues from a few minutes to one or more hours; when induced by walking or other exercise, it is generally short, but exceedingly violent; when the patient is at rest, especially when the disease has assumed a chronic form, it is long continued, but mild. When the disease is of short standing, the paroxysms occur at long intervals; these are gradually shortened, until, in some cases, there is but little exemption from them.

"The *chornic* form of the disease," says Dr. Copland, "is characterized by the circumstance of its being frequently a consequence of the acute; by the occurrence of the fit from the

slightest causes, and after short or imperfect intervals of exemption; by its recurrence when the patient is at rest or asleep, and by its much longer duration, but less extreme violence. Even if this form be induced by exercise, rest has but little influence in shortening its duration, as in the preceding, and the paroxysm has been protracted, not only for some hours, but even for several days. Palpitation of the heart, irregular and intermitting pulse, are more frequently concomitants of this state of the disease, than of the other."

CAUSES.—This disease has been observed to occur most frequently in persons of a rheumatic or gouty constitution; in those who lead an indolent or sedentary life, or have been subjected to much and continued anxiety, or have been fast livers, guilty of such excesses as impair the nervous system and powers of digestion. It is a disease of the middle-aged, and men are far more frequently attacked than women. The digestive powers are invariably impaired, though the condition of the stomach varies greatly—sometimes, torpor; at others, irritation; again, chronic inflammation. Digestion being imperfect, nutrition of structure can not be normal, which would, in some degree at least, account for the structural changes found in the heart, and especially for the perversion of innervation, which is the special feature of the disease.

PROGNOSIS.—The prognosis may be considered favorable if the case is recent, and there is no structural lesion of the heart. If, however, the constitution is badly impaired, with organic disease of this viscus, a radical cure can not be effected.

TREATMENT.—For the arrest of the paroxysm, the patient should be kept entirely quiet; warmth applied to the extremities, if necessary; or, if the circulation is impaired, friction to the surface, and stimulating applications to the thorax. As an internal remedy, I believe no agent is more efficient than the Lobelia. In a very severe case, the administration of a teaspoonful of the tincture of the seed, was followed by immediate relief in two paroxysms. Tincture of Gelseminum has been recommended, as has also the Compound Tincture of Cajeput, when the circulation is very feeble. A mild purgative, as Compound Powder of Jalap and Senna, with some stimulating anti-spasmodic, as Tincture of Lavander, Spiritus

Ammoniæ Aromaticus, Capsicum, etc., is advantageous when the attack is passing off.

The treatment for the radical cure will be very similar tc that named for neuralgia of the heart. Especial attention should be paid to the condition of the stomach and digestive organs, the excretions kept free, the quantity and quality of the blood improved, and those special remedies employed which increase normal innervation. All exciting causes should be studiously avoided; the patient should be temperate in all things. As a means of warding off the attacks, the agents named under the head of neuralgia may be employed with much advantage

INFLAMMATION OF THE HEART.

For the purpose of better describing this affection, we may divide it, according to the character of the disease and its seat, into—1st, rheumatism of the heart; 2d, pericarditis; 3d endocarditis; and 4th, carditis. It is not always possible to diagnose the exact site of the disease, even when confined to one part, and in many cases the inflammation affects, more or less, all parts of the viscus; but as the treatment for each is very similar, it does not make much difference.

RHEUMATISM OF THE HEART.

This is generally a metastasis of the disease; the patient having been affected with rheumatism of some portions of the body, it ceases or becomes modified, and the heart affection ensues. This, however, is not always the case, as it is a well established fact, that it may attack the heart first; in some cases, no other portion of the body being affected.

SYMPTOMS.—In the mild form, the patient complains of a dull, gnawing pain in the region of the heart, with sometimes occasional sharp, darting pains, which last but for a moment; there is a feeling of depression and anxiety, that the patient can not account for; frequently a sensation of dyspnœa, and sighing respiration; in some cases the action of the heart is strong, with marked impulse on the thoracic walls, more frequently it is feeble, the normal sounds being much lessened. The pulse is frequent, from 100 to 140 per minute; stroke

sharp and quick, sometimes irregular. There is no heat of the skin; frequently, coldness and pallor of the extremities, with irregular action of the excretory organs.

In severe cases, the patient experiences a violent pain in the region of the heart, of a lacerating or rending character; there is extreme anxiety, preceded or attended with chills or rigors. In a short time, reaction is so far established that the trunk becomes hot, but the extremities and face are cold, and the entire body is covered with perspiration, warm on the body, cold on the extremities. Respiration is performed with the greatest difficulty; the distress and agitation of the patient being extreme. "The patient feels every pulsation of the heart; rolls about to obtain ease, and presses his hand forcibly against the præcordia. The chest is elevated; the head thrown back; there is great thirst, but drink is refused on reaching the lips; and there is often loquacity, passing into delirium, as the disease advances." There is considerable variation in the pulse, but it is generally small, weak, irregular or intermittent, and very frequent. If the disease is not soon arrested, jactitation comes on, there is constantly recurring fits of syncope, continued delirium, and very soon death terminates the sufferings of the patient.

It will be seen from the above symptoms that the diagnosis is tolerable easy. The prognosis may be considered favorable in a majority of cases, if the treatment is prompt and well directed.

TREATMENT.—If seen early, and the right anti-rheumatic is selected, we have little trouble with the case, but when it is advanced for twenty-four or forty-eight hours it will require close watching. The sedative is selected as in other diseases. Veratrum being the remedy when the pulse is hard and has some fullness; Aconite when the pulse is small and thready. Small doses, frequently repeated, give the best results. Every fifteen minutes or half hour is not too frequent a repetition at first.

The remedy for the rheumatism should be selected with care. If we have determined the best remedy for the case before the heart is involved, the disease being a metastasis, or if we have determined the epidemic remedy for the season, or if some special remedy has acted kindly with this patient before, we will have this to guide us.

Bryonia is indicated by strength of pulse, heart feels sore, aches, in addition to sharp pains, tendency to cough.

Rhus by severe frontal headache, sharp stroke of pulse, contraction of facial muscles, sudden startings, and involuntary cry from pain.

Apocynum by puffy face, swollen eyelids, and œdema of feet.

Sticta by pain in neck, extending to shoulders and back of head.

Phytolacca by sense of irritation in throat, pallid tongue.

Colchicum by the pain extending down the brachial nerves.

Eupatorium by moist skin, though hot, and sense of great oppression in chest.

Salycilic Acid when none of these symptoms are distinctive, but with the characteristic symptoms of an inflammation. This is not as explicit as I should wish, but the specific indications have not been determined.

In some cases the Salycillic Acid is given alone—two grains every one or two hours. In most cases it is given as a Salycillate of Soda or Potash. I like the combination with Acetate of Potash, as it seems to do its work more readily and with less after effect.

In a severe case, our measures must be more active, and are somewhat different; here, it will not, as a general rule, answer to use sedatives untill the heart acts regularly. I commence the treatment by the application of six or eight cups over the præcordia, drawing them well, and scarifying; apply to the entire lower extremities flannel cloths wrung out of a hot infusion of Mustard, changing them every ten or fifteen minutes.

In the course of a few hours, the patient can be turned upon his side, when I direct cups and scarification to the spine, over the entire dorsal region; the number applied depending upon the severity of the case. Then we can commence the use of the direct sedatives, and the additional treatment recommended for the mild case. The object we wish to obtain by the active treatment recommended above, is temporary relief for the overburdened heart. That it will not do to use sedatives at first, is proven to my satisfaction by the fatal termination of three cases which have come to my knowledge, and one under my own observation, in which Veratrum was used at the commencement. The means I recommend will relieve the over-

burdened organ, and then sedatives can be employed without danger.

In chronic rheumatism of the heart, I employ the same remedies, in suitable doses; the irritating plaster to the præcordia, and, if there is tenderness on pressure, to the spine; Citrate or Acetate of Potash, as a diuretic; the daily use of the alkaline bath; the bowels to be kept in a soluble condition; and suitable bitter tonics and Iron, to improve the quantity and quality of the blood.

PERICARDITIS.

SYMPTOMS.—Very frequently the disease is ushered in by a marked chill or rigor, though sometimes it is difficult to detect. To this succeeds febrile reaction; the skin becomes hot, though perspirable; the pulse is generally full, strong, hard, and frequent; the urinary secretion is somewhat arrested, and bowels constipated. Considerable oppression at the præcordia is felt, with much anxiety, which constantly increases. A more or less acute pain is experienced under the left nipple, sometimes so severe as to render respiration extremely difficult; there is tenderness on pressure over the heart. The pulsations of the heart are much stronger than usual, sometimes regular, though frequently irregular, tumultuous, unequal, or intermittent; frequently, paroxysms of palpitation, when the impulse can be readily felt by the hand. By the end of the second day, we find that the feeling of oppression and anxiety has so increased as to be almost insupportable. The pulse is unequal, oppressed, irregular, small, and rapid, often intermittent. The skin is either hot, dry, and constricted, or an increased heat of the trunk, with coldness of the extremities, which are frequently covered with a cold, clammy perspiration; sometimes nausea and vomiting come on, which, to some extent, obscures the the disease; in other cases, a severe singultus occurs, greatly aggravating the sufferings of the patient. If the adjoining pleura is implicated, respiration is hurried, short and shallow, sometimes interrupted by broken sighs, or by deep catching inspirations. Sometimes, in this stage, there is noticed a diffused rumbling sound, resembling the *to-and-fro* sound in pleuritis; frequently there is a more or less marked bellows-sound.

With the appearance of effusion—which may occur at any period from the first to the fourth day—we notice an increased

dullness on percussion, and diminution of the sounds of the heart on auscultation. If there is much effusion, there is marked and extensive dullness on percussion; a weak and diffused impulse of the heart; a small, weak, irregular pulse, and extreme or constant dyspnœa. Very frequently the countenance becomes tumid, bloated and livid. Motion induces faintness or syncope; the pulse nearly disappearing.

Sometimes the general symptoms are very light during the entire course of the disease, there being but the anxiety and oppression, with occasional lancinating or tearing pains, and increased frequency and irregularity of pulse, to mark the progress of the disease.

CARDITIS.

SYMPTOMS.—The patient experiences a violent pain in the region of the heart, with anxiety, preceded or attended by rigors, chills, or tremblings of the whole frame. To these succeed increased heat about the præcordia, or in the trunk, while the extremities and face are cold, and the whole surface is covered with perspiration, which is cold on the extremities. The pain is concentrated in the situation of the heart, is lacerating or rending, accompanied by the utmost agitation and expression of anxiety and distress; sometimes by screams, and occasionally by general convulsions or swoonings. The patient feels every pulsation of the heart, rolls about to obtain ease, and presses his hand forcibly against the præcordia. The chest is elevated, the head thrown back; there is great thirst, but drink is refused on reaching the lips; and there is often loquacity, passing into delirum as the disease advances. The pulse varies remarkably, but is generally unequal or irregular, and remarkably small and weak, or indistinct. If the disease is not soon arrested, constant jactitation or tremor, recurring fits of syncope, delirium, and death take place.

ENDOCARDITIS.

SYMPTOMS.—If the inflammation is confined to the endocardium, actual pain is seldom felt, the patient complaining of oppression or anxiety in the præcordia, with faintness. It is ushered in by a slight chill, but febrile reaction is not very well marked. The *physical signs*, says Dr. Copland, require the closest attention: "1. The præcordial region, in simple

endocarditis, is shaken by the violence of the heart's action, the hand being forcibly resisted by the impulse, when applied over this region. The pulsations are felt over a greater extent than natural, owing to the turgescence of the organ in an inflamed state; and a vibratory tumor, more or less marked, is also sometimes felt. 2. *Percussion* furnishes a dull sound over a greater extent of surface than natural—from four to nine or twelve square inches. But in order to distinguish this sound from that attending effusion into the pericardium, it is necessary to observe that it co-exists with a visible, superficial, and sensible pulsation of the heart; the last being profound, and hardly visible or sensible in pericarditis with effusion. 3. *Auscultation* detects a bellows-sound, which masks the true normal sounds, or one of them only. The sound is louder, the stronger the action of the heart; and is also rougher, the greater the swelling of the valves, and the more abundant and concrete the exudation of lymph from the inflamed surface. Sometimes, when the palpitations are violent, a metallic sound, isochronous with the systole of the ventricle, is heard. 4. The *force* of the heart's contractions is changed, both to the eye and touch, and the frequency equally affected; the pulse rising sometimes as high as 140 and 160, or even higher, in a minute, and becoming irregular, unequal or intermittent. 5. *Animal heat* is generally also increased, but not usually in proportion to the augmentation of the circulation. The arterial pulsations represent the *frequency*, but not the *strength* of the heart's action in this disease; for, while the contractions of the heart are energetic, the *pulse* is generally small, soft, and indistinct. This is owing to the obstacle opposed to the circulation by the sucking of the valves or orifices, or both, or by the fibrinous exudations formed around them—a smaller quantity of blood being thrown into the arterial trunks; hence, probably, arise the pallor, anxiety, jactitation, faintness, leipothmia, want of consciousness, etc., so frequently observed."

If the venous circulation is obstructed, the dyspnœa is greatly increased, the face is bloated and livid, and œdema appears. In such case, the patient experiences the most distressing oppression; can not lie down in bed; is watchful, restless, and subject to constant jactitation.

POST-MORTEM APPEARANCES.—In *pericarditis*, when death occurs early in the disease, there is frequently nothing but redness and injection of the pericardium; sometimes the redness is increased by infiltration of minute quantities of blood into the adjacent tissues, so as to give rise to ecchymosis, or red spots. In the stage of effusion, there are various appearances; the effused fluid usually separates into a turbid or flocculent serum, and a concrete or fibrinous false membrane. In some instances the effusion consists of a well-formed pus; in others there is no fluid, the exudation forming false membrane, and fibrinous adhesions between the free surfaces of the pericardium. The effusion in pericarditis varies from one to two ounces to as much as four pounds.

In *carditis*, the structure of the heart is discolored reddish-brown, softened and injected. Sometimes, but rarely, there has been observed collections and infiltrations of pus. Sometimes there is softening, the heart being whitish, grayish, or yellowish.

In *endocarditis*, there is sometimes but little evidence of the disease, beyond slight thickening and softening of the membrane, which is more easily separated from the muscular structure. Occasionally there is great contraction of the openings, and thickening of the valves—frequently the formation of fibrinous concretions from the orifices, valves, or internal surface.

DIAGNOSIS.—The diagnosis must be in part by *exclusion*; then we have the prominent symptoms—continued pain or anxiety in the region of the heart; palpitations; a tendency to syncope, or faintness; dyspnœa; acceleration and irregularity of the pulse; with symptomatic inflammatory fever. As has been before remarked, we rarely find the inflammation confined to one tissue; hence we have to take the aggregate symptoms of the three forms of inflammation, to establish the diagnosis.

PROGNOSIS.—Though the disease is one of the most severe to which mankind is liable, yet the prognosis may be considered favorable, if prompt treatment is adopted in the early stage.

The *sequelæ* of the disease embrace nearly the entire list of chronic structural diseases.

TREATMENT.—The treatment of inflammation of the heart, must be prompt and decisive; the first indication being to relieve it by getting determination of blood to other parts, and lessening irritation. To fulfill this, I direct the application of cups to the præcordia, with scarification, if the case is severe, following with fomentations of Lobelia. The extremities should be wrapped in cloths wrung out of Mustard-water, as hot as they can be borne; and these should be continued until free circulation is established.

The sedative will be selected as in other cases. Aconite, if the pulse is very small; Veratrum, if somewhat full and hard. The dose may be small, and repeated as frequently as every half hour; say of the first gtts. v., of the second gtts. x to water ℥iv. To this we add the remedy indicated by the nervous system. Bryonia, if the right cheek is flushed and there is costal pain. Rhus, if the pulse is sharp and there is frontal headache or pain in left orbit. Gelseminum, if the face is flushed and there is general headache. Sticta, if there is pain in the neck, extending to the shoulders and back of the head.

As we gain control of the circulation, we add to the above the Tincture of Asclepias, or still better, let the patient use an infusion freely. The bowels may be moved with a trituration of Podophyllin and Bitartrate of Potash; or if there is any tendency to irritation of the stomach, an enema should be used instead. The Acetate or Citrate of Potash is also given to the extent of ℥ij. to ℥iij. in the course of twenty-four hours.

So soon as secretion is established, we will find the patient benefited by small doses of Quinine. I prefer it in the form of the Triple Phosphate of Quinia, Strychnia, and Iron, half a teaspoonful every four to six hours.

The patient requires careful nursing, and especially to be kept from excitement. The sedation will be continued until convalescence is completely established, as will the tonic. To relieve any unpleasant symptoms of oppression at the præcordia the Cactus may be given. And if there is irritation of the nervous system with restlessness, and sometimes difficulty in sleeping, the Pulsatilla will be useful.

Other treatment, after the inflammation is arrested, will have to be left to the good judgment of the practitioner, meeting the indications as they arise.

CHRONIC STRUCTURAL DISEASE.

There is a large class of cases in which the health is slowly impaired, and death eventually induced, by derangements of the circulation, which depend on organic changes of the heart. These changes affect its contractile power and its valvular apparatus. The principal of these organic lesions are, *hypertrophy*, *attenuation*, and *structural alteration* of the muscular walls of the heart, on which its contractile powers depend; and *valvular derangements*, which either interfere with the perfect closure of the different orifices of the heart, and thereby permit a regurgitation of the blood, or else offer obstacles to the onward flowing of the blood in its normal direction.

These diseases are diagnosed principally by physical signs, the most important of which are obtained by auscultation. During the healthy action of the heart, if the ear is applied to the præcordia, two sounds are heard. The first is synchronous with the pulse, is long and muffled; the second immediately follows, and is short and clear; then a pause, and they are repeated. The first has been termed the *systolic* sound, and is undoubtedly caused by the contraction of the ventricles; the second—the *diastolic* sound—is produced by the back stroke of the blood and the unfolding of the semilunar valves. These sounds recur with the greatest regularity during the healthy action of this viscus, so that alterations in its *rhythm* become evidences of diseased action. They become more intense if the walls of the thorax are thin and elastic; or if the spongy texture of the lung is replaced by solids or liquids; or if there is excessive contraction of the walls of the heart. They are less intense if the heart is farther removed from the thoracic wall, or by thickening of the same; or if there is defective contraction of its walls. They are changed in character, or replaced by the adventitious sounds, by changes in the blood—which would impair its circulation—by changes in its muscular parieties, and especially by structural alteration of its orifices and valves. These sounds may be loud or feeble, clear or muffled, extended, distant, ringing, etc.

The principal adventitious sounds, are the *bellows* sound, the *rasp* sound, *saw* sound, and *file* sound. The first, or *bellows*

murmur, may be the result of several lesions, as: 1st, of dilatation of one or more of the heart's orifices, with deficiency of the valves, and consequent regurgitation of the blood; 2nd, anæmia, with defective action of the heart; 3rd, polypoid exudations, resulting from inflammation; 4th, irregularity or roughness of the surface of the valves, or vegetations, or calcareous formations within or upon them. The three sounds last named, are produced by such structural changes of the orifices and valves as give rise to unnatural motions in the current of the blood circulating through the heart.

HYPERTROPHY OF THE HEART.

Hypertrophy of the heart exists in two forms, *with* and *without* dilatation of its cavities; the first is of far more frequent occurrence. It may also be confined almost entirely to one cavity, as in hypertrophy of the left ventricle, from obstruction of the aortic opening. The *causes* of hypertrophy are such as will increase nutrition, as continued determination of blood, the result of inflammation, rarely excessive innervation, and obstruction of the free passage of the blood from the heart, which necessitates an increased power, and a consequent excess of nutrition. In almost all cases, it is associated with other disease.

SYMPTOMS.—The local signs of the disease consist principally in an increased force of the heart's contraction, manifest by a more extensive and enduring impulse felt in the cardiac region, an increased dullness on percussion, and an increase of the sounds. The extent of dullness on percussion is not as great in simple hypertrophy, as it is in hypertrophy with dilatation; the sounds are likewise more prolonged and dull in the first than in the last; frequently, in hypertrophy with dilatation the sounds are remarkably clear, loud, and short.

If there is no other marked structural change than the hypertrophy, the general symptoms are such as would arise from an excess of force in the circulation of the blood; sometimes, apoplectic symptoms, tendency to active hemorrhage, etc.

TREATMENT.—The treatment of this condition is principally hygienic. The patient should be placed on an unstimulating

diet, rather scanty than otherwise; excessive exertion should be carefully avoided, and all the secretions kept free. The object is, to reduce the quantity of nutritient material in circulation to the lowest quantity compatible with health, and to remove, as far as possible, any cause of excited action of the heart. The unpleasant symptoms that frequently attend this, are relieved by the same remedies recommended in functional heart disease. Indeed in some cases these will be all that is required in the form of medicines.

ATTENUATION OF THE WALLS OF THE HEART.

This is a very rare affection, in any considerable degree, without dilatation, as the nutrition of the heart is seldom so much impaired, even when other muscular structures suffer greatly. The evidences of it are very obscure during life, being nothing more than want of power in the circulation of the blood. The same tonic and stimulant plan of treatment we would adopt in defective nutrition of other parts, would be applicable here.

Attenuation with dilatation is of more frequent occurrence, the symptoms being, according to Copland, "slight palpitations, with dyspnœa and cough; the impulse of the heart being weak and diffused; the sounds being louder, clearer, shorter, and heard over a larger extent of the chest than natural; and the pulse being weak, small and irregular." The treatment—so far as we can treat it—is obvious; improve the general health and tone of the system, by the judicious use of bitter tonics, Iron, the use of nutritious food, exercise in the open air, etc.

DEGENERATION OF TISSUE.*

Softening, fatty degeneration, and osseous degeneration are more frequently met with in the heart than in other tissues. They are developed very gradually, and, unless there are some symptoms specially calling our attention to the heart, may escape notice until revealed by the scalpel.

Sudden deaths are almost always attributed to heart disease, both by the people who have been accustomed to regard sud-

*See Principles of Medicine, pages 71 to 77.

den death as resulting from this cause, and physicians, who should know better. In probably more than one-half of these cases, the cause of death is from disease of the nervous system. And in those cases that are correctly attributed to heart disease, but a small proportion are from the usual forms of these affections—those that have given marked symptoms, or have had pronounced physical signs.

If, therefore, sudden death is from these degenerations of tissue, it is important that we be able to recognize it at an early stage, and, at least use means to prevent any sudden strain upon the enfeebled tissue, if we can not effect a cure.

Causes.—It is difficult to determine the causes of degeneration of tissue. In some cases, it seems to be dependent upon a natural want of viability. In others, the impairment of nutrition is induced by intemperance in its various forms. There are three elements in degeneration—imperfect digestion and assimilation, making poor blood—imperfect cell-development, making poor tissue—and imperfect waste, leaving the tissue old and worn-out.

Symptoms.—As named at first, the symptoms of degeneration of the tissues of the heart, are not prominent, as in other diseases of this organ; they do not force themselves on our attention, but must be carefully looked for.

In some cases we find the patient complaining of slight sense of weight and oppression in the præcordia, and of difficulty in respiration. In some, these will be incurred by active exertion, and also by mental excitement. More frequently, the patient complains of dizziness and feeling of feebleness and tension in the head. In these cases we will observe a slight duskiness and an increase of color in the face, and especially in the tip of the nose and ears.

The pulse shows a want of power in the heart's contraction, and is occasionally irregular, both as regards time and intensity. There is also evidence of feeble venous circulation.

If with such symptoms as I have named, we find a want of energy in the movement, of expression in the face, the soft tissues of the individual sitting on him like a badly fitted suit of clothes, the diagnosis is pretty clear.

In all such cases the amount of fæces is large, and composed mostly of undigested or unassimilated food, whilst the solids of

the urine are deficient, and secretion from the skin scanty. A deficient retrograde metamorphosis, is an important element in the majority of these cases.

DIAGNOSIS.—As we have seen above, there are always some evidences of enfeebled circulation: sometimes direct præcordial symptoms. These, associated with the unpleasant sensations in the head, are sufficient to determine that it is a heart disease. The absence of morbid sounds determines that it is not valvular disease; whilst the general expression of the patient shows bad waste and nutrition, and indicates the character of the cardiac lesion.

PROGNOSIS.—The prognosis is not favorable, yet with careful treatment the life may be prolonged for a considerable time, the patient enjoying moderately good health. In some cases it is possible to so increase the waste, and improve nutrition, as to renew the tissue of the heart, and finally strengthen it to that degree that it will be competent for any labor thrown upon it.

TREATMENT.—The first object of treatment is, to control any irritation, and improve the innervation of the heart. For this purpose I prefer the Cactus and Digitalis, in alternation, using them in the same doses as previously named. There is no doubt but that the Digitalis is a cardiac tonic and stimulant, when used in small doses. Of course, the sedative dose would prove injurious. There are cases in which the Veratrum will replace the Digitalis with advantage.

The patient should have an explicit explanation of the nature of the disease, and the necessity of avoiding mental and physical excitement pointed out. If the person can appreciate that the danger of sudden death is from such causes as require increased action of the viscus, he will be likely to avoid them When the person is of a nervous temperament, and is very excitable, it is well to prescribe Pulsatilla for him, to be taken as occasion requires.

The general treatment of the disease is directed to increasing the waste of tissue, and in the same proportion increasing nutrition. It consists essentially of two parts. The first stimulates the excretory outlets, and thus favors the removal of worn-out material from the blood; it also favors retrograde metamorphosis, fitting the material for excretion. The second

improves the appetite, digestion, assimilation, bloodmaking and nutrition of tissue.

It is, to use the expression of Dr. Chambers, "a renewal of life." If now, we recollect, that in health our soft tissues are broken down and replaced every four months, we can readily see how, by stimulating the rapidity of waste, and improving the renewal, we may, after a time, get a very good tissue. True, that tissue which has degenerated, can never be reproduced, at least, in its original form. But the nutrition of the sound muscular fiber being thus stimulated, we find it increase in strength in proportion to the rapidity and goodness of its renewal; whilst the degenerated tissue may assume its highest form—fibrous degeneration.

It is not necessary here to specify the particular remedies to be used. The skin is called into action principally by baths and frictions; the bowels by the use of tonics and small doses of special excitants, as Podophyllum and some of the alteratives; the kidneys by the vegetable alteratives, and occasionally the saline diuretics.

The bitter tonics are carefully selected with reference to their power of improving digestion, more than simply increasing the appetite. The restoratives, Iron, Phosphorus, etc., with reference to the ease with which they are appropriated. These remedies will have to be changed from time to time as they lose their influence.

The patient should have a nutritious diet, selected with reference to the wants of the case in hand. In all cases we will find that animal food will play an important part, as it furnishes the material for muscular tissues at less expense of vitality than vegetable food. Moderate exercise in the open air is required, but should be carefully regulated.

DISEASE OF THE VALVES.

We may properly divide disease of the valves of the heart into two classes: first, where, from contraction of the orifice, or change in the structure of the valves themselves, the free passage of the blood is prevented; and, second, where the valves are insufficient to close the opening, permitting regurgitation.

Obstruction to the passage of blood through the orifices, is generally attended with the development of one of the adventitious sounds—*i. e.*, the saw, rasp or file sounds,—especially if in any considerable degree; if not, the alteration is merely a roughing of the natural sounds of the heart. The general symptoms depend somewhat upon the situation of the disease.

The left *auriculo-ventricular* opening is most frequently involved. The cause of the obstruction may be, contraction of the opening, thickening of the valves, fibroid vegetations, cartilaginous or ossific formations, from or within their structures. If the obstruction is considerable, the blood can not pass freely from the lungs; hence, congestion, apoplexy, and hemorrhage of the lungs, are of frequent occurrence. In these cases, all the general symptoms sometimes point to the lungs as the seat of the disease; the cough, expectoration, dyspnœa, etc., seem sufficient evidence on superficial examination. The morbid sound, heard on auscultation, is either a saw, rasp, or file sound, or a roughened bellows murmur, not very intense; it is most intense at the left side of the sternum, between the third and fourth ribs, and occurs at the time of the production of the second natural sound.

Obstruction at the *aortic orifice* generally causes enlargement of the heart, with hypertrophy, especially of the left ventricle. When in considerable degree, the pulse is small and weak, and the general symptoms such as would arise from obstructed circulation of the blood. If the entire heart is hypertrophied, the contractions necessarily being forcible, the vis-a tergo of the blood from the right side to the lungs is markedly increased, and its free passage from them being obstructed by the diminished aortic opening, we frequently have hemoptysis, cough, increased expectoration, and other evidence of disease of the lungs. In either of these cases, dropsy may result, if the patient becomes debilitated. This obstruction is evidenced by a bellows sound, which is superficial, occasionally sibilous, masking or replacing the first natural sound. If it arises from vegetations from the semi-lunar valves, or cartilaginous or ossific formation within, then the sound is generally a *saw sound*. These sounds can generally be heard for some distance over the larger arteries.

Obstruction of the *right auriculo-ventricular* orifice, is next in frequency. It is evidenced by a deep blowing or filing

sound, most distinct under the junction of the fourth rib with the sternum; it replaces the second natural sound. In this case, there being obstruction to the free passage of venous blood, we find the jugular veins prominent, and when severe, evidence of general venous congestion. Dropsy is a very frequent result, when the general health becomes impaired. There is rarely obstruction at the pulmonary orifice.

Insufficiency of the mitral valves occasions a morbid sound of either of the three characters named, and is heard at the time of the first natural sound. The pulse is always irregular and intermittent, with general symptoms of disordered circulation. In some cases, the lungs suffer in a remarkable degree.

Insufficiency of the aortic valves, is marked by a short, whiffling, or rasp sound, replacing the second natural sound. The impulse of the heart is generally strong and heaving, with strong pulsation, and sometimes purring thrill over the carotid arteries. This affection—as is the case with most heart diseases—precludes the possibility of laborious exercise, though frequently the general health is but little affected.

Insufficiency of the tricuspid valves, is marked by either a saw, rasp, or bellows sound, which replaces the second natural sound. Owing to regurgitation, and consequent obstruction to the venous circulation, there is distention of the jugular veins, with *pulsation*. In this disease there is marked venous obstruction. The health is considerably impaired, and dropsy of very frequent occurrence.

TREATMENT.—In olden time it was thought that heart disease, of whatever character, was incurable. Of late years it is admitted that functional heart disease may be cured, but that structural disease is necessarily fatal. Now if we bear in mind that the heart is formed of the same kinds of tissue as other muscular organs; that it has its supply of blood from the same source and in the same way; that its nutrition is the same; that it is governed by the same laws of waste and supply as all other parts, we must arrive at the conclusion that its structural lesions are amenable to the same treatment that succeeds in similar lesions of other parts.

I admit that we arrive at the conclusion that structural heart disease can be influenced by treatment, with much difficulty, and only become fully convinced when we have the

results of our own experience. It is such experience, in the treatment of cases, and in my own person, that has satisfied me that this class of diseases can be treated with success.

There are two objects of treatment in these cases: the first is, to relieve irritation of the cardiac nerves, and give the organ rest, as far as possible; the second, to improve its nutrition, and to stimulate the removal of adventitious tissue.

It is evident that in all these cases the heart is placed at a disadvantage in regard to its nutrition and the exercise of its function (power), by the irregularity of its innervation; that there is constantly an expenditure of force that is not utilized in the circulation of the blood. And it is this that gives rise to the unpleasant symptoms of heart disease.

In controlling these symptoms, therefore, we not only give present relief, but we put the patient in condition to derive permanent benefit. We employ the same remedies here that have been recommended in functional disease: the Cactus to remove unpleasant sensations in the præcordia; the Pulsatilla to remove excitation of the nervous system; the Veratrum to control increased frequency of contraction; and the Digitalis to increase the strength of the heart's movements. Knowing the special action of these remedies, the physician will select and change them according to the indications of the case; always using the remedies singly, and if two are given at the same time, alternating them.

Any habits that the patient may have formed, that cause cardiac irritation, must be broken up. I may specify the use of *tobacco*, both by smoking and chewing, which is a very common cause of cardiac excitement. Excessive sexual excitement, especially ungratified excitement, is another prominent cause. Intemperance of whatever character, whether of drinking, eating, or of the emotions is injurious. The patient should be clearly instructed in these respects, and impressed with the necessity of avoiding all sources of irritation.

Nature is an admirable physician, and will frequently accomplish very great changes, if we only provide for the due performance of natural processes. Thus in the cases under consideration, if the general health was reasonably good, I would not deem it necessary to do much more than named, expecting that in time the continued renewal of structure would rectify the lesion.

When the disease is evidently occasioned by fibrinous deposit, as in nearly all of the cases of obstructed openings, we may stimulate its removal in the usual way. It is not necessary here to name special remedies. We wish to put the skin, kidneys, and bowels in an active condition, and in doing this we increase the waste of tissue. We may increase the metamorphosis of tissue by the use of the saline diuretics, preparations of Iodine, and the vegetable alteratives. This is the first part of the treatment, and looks to the absorption of the effused product.

The second part is just as important, it looks to the renewal of tissue, and consists of those remedies that improve the appetite, the power of digestion, of blood making, and nutrition.

In cases of valvular deficiency we have much less hope of accomplishing anything. But even here, controlling the unpleasant heart symptoms by the means first named, a judicious tonic and restorative treatment will sometimes place the patient in a comparatively comfortable condition, and prolong the life.

ARTERITIS.

The symptoms of disease of the arteries are very obscure, and it is doubtful whether it is possible to determine clearly during life. If confined to a single limb or portion of the body, the symptoms are so like inflammation of the part that the two can not be distinguished. If, however, the disease results in obstruction of their canals, the tendency to sphacelus, manifested by the appearance of large bullæ, imperfect circulation of the blood, etc., with rigors and marked prostration, may lead us to suspect this condition.

The symptoms of general arteritis, according to Copland, are: rigors, followed by fever, great anxiety, irritability, restlessness, uneasiness, a sensation of burning heat, remarkable pulsation, with increased sensibility in the course of the large arteries. The patient complains of marked throbbing throughout the system; the surface is hot, tumid and injected; the tongue red, its papillæ erect, and base loaded; the bowels are costive; thirst urgent; urine scanty, high-colored and scalding. The pulse is strong, throbbing, full and frequent; and there is sometimes paroxysms of cough and dyspnœa.

In the second stage of the disease the pulse becomes very frequent, wiry, weak and irregular. There are palpitations, anxiety, and severe paroxysms of dyspnœa; the tongue is coated with a dark fur, and sordes appear on the teeth; the countenance shrinks, and is pallid and haggard, or, towards the last, becomes bloated, œdematous, and the lips purple. These symptoms increasing, hiccough, jactitation and convulsions make their appearance, and the patient is soon worn out.

TREATMENT.—There is a singular relationship between arteritis and erysipelas in some of the symptoms, and, especially, in the indications for remedies, and I think if the disease were treated as an erysipelas there would be better success. The Tincture of Muriate of Iron should be given internally, and applied locally when the redness leaves a deep color. Veratrum would be used internally and locally where the pulse was strong, with the local coloration of an active inflammation. Rhus would be selected when the pulse was small with sharp stroke and there was frontal headache, or Sulphite of Soda when there was the broad, pallid, dirty tongue.

In the general disease, in the first stage, the warm bath, at 90° to 100°, or the vapor bath, with the special sedatives as named under the head of fever, followed by Quinia, I should judge to be judicious. Possibly the wet sheet pack might be used with advantage. In the second stage, it does not seem that treatment would be of much advantage, but we might adopt that named for typhus fever.

ANEURISM.

The treatment of aneurism more properly belongs to the surgeon, and I only notice it here, as it affects internal parts, that are out of the reach of surgical aid, but require the assistance of the physician, if for nothing but the palliation of the unpleasant symptoms.

NERVOUS PULSATION, SIMULATING ANEURISM.—This occurs chiefly in feeble, delicate persons, when there is much emaciation, and is usually associated with disease of parts immediately upon or adjacent to the spot where the pulsations occur. It is generally confined to the aorta, and more frequently

appears in the epigastrium than at any other point. The sensation is extremely unpleasant, and the marked pulsations simulating aneurism, calculated to very much alarm the patient. In addition to this the general health is usually impaired, so that the influence upon the nervous system is much more marked.

We determine the difference between this and an aneurism by the fact that the pulsation is jerking and sudden, and rarely diastolic, like an aneurismal tumor, but strikes upward as the patient lies on the back, and if diastolic not to an extent greater than the caliber of the artery. It is not a circumscribed, but rather an elongated pulsation, sometimes occupying the whole line of vessel; and in many cases it differs from the throbbings of an aneurism in this, that its intensity increases from above downwards, and has its maximum at the umbilical region, and that its force and character are continually varying.

The *causes* of this pulsation, according to Dr. Mott, are enlargement or disease of the pancreas; scirrhus of the stomach, particularly of its pyloric orifice; tumors at the foot of the mesentery; nervous irritation; enlargement of the vena cava inferior; increased solidity of the lungs; enlargement of the heart, particularly a dilatation of its right side; adhesion of the pericardium of the heart.

TREATMENT.—The treatment of nervous pulsation requires the careful selection of remedies and accessory means. We must know what the cause is that it may be removed, unless, indeed, the specific indications for a remedy are very marked. Thus in a very bad case, with afternoon exacerbation—about four o'clock—urine depositing a red sediment, the patient was cured by Lycopodium alone. In another case, where the epigastric pulsation was the result of Lithæmia, the use of Acetate of Potash for some weeks, followed by the simple bitters, gave a radical cure. Another case was cured by the use of Ergot in ten drop doses every four hours. A case marked by obstinate constipation, the difficulty being principally in the sigmoid flexure, was cured by the small Podophyllin pill aided by Massage.

If there is irritation of the spinal cord, marked by tenderness, the irritating plaster or other means of counter-irritation

should be used until it is removed. Any disease of parts adjacent to or connected by sympathy with the region of pulsation, should be appropriately treated. A daily bath suitable to the case should be employed, as a normal action of the skin is very beneficial in these cases; regular exercise in the open air should be taken, and a light but nutritious diet recommended.

THORACIC ANEURISM.

This occurs far more frequently at the arch of the aorta than in any other part. It presents varied symptoms in different persons, sometimes giving rise to severe suffering, at others, occasioning but very little. The rapidity of growth varies very greatly, in some cases running its course in a few weeks, again lasting for years. At first, it gives rise to but little disturbance, but as it increases in size, the pressure on adjacent parts causes unpleasant and sometimes very severe symptoms. Usually the respiratory apparatus is most affected, and more or less difficulty of breathing is experienced; this is very great in some cases where the pressure is against the trachea. As the tumor enlarges, it forces the lungs to one side, and makes its appearance under the thoracic wall; gradually the pressure causes absorption, and it becomes very apparent; and it may continue until it forms a long, external, pulsating tumor. Being situated further back, it causes more disturbance, and is more difficult of diagnosis. It is in these cases that we have such extensive absorption of soft parts, and of the bodies of the vertebra.

DIAGNOSIS.—This is formed from the general symptoms, which indicate the seat of the disturbance, and from auscultation and percussion. In those cases in which the tumor makes its appearance anteriorly, the diagnosis is easy, and these are the only cases in which it is so. In others, if in front, we find dullness on percussion, and in any case a deep, double sound, louder than a bellows murmur, and of a rasping character. If the ear applied to the back detects an abrupt rasping sound, synchronous with the pulse, there is aneurism.

ANEURISM OF THE ABDOMINAL AORTA.

This is usually not difficult to determine, though it is sometimes very obscure. According to Copland, it is attended with acute pain, occasionally shooting into either hypochondria, and downwards into the thighs and scrotum. It is often exacerbated into violent paroxysms, being dull and fixed at intervals; it is aggravated by constipation, changes of position, and pressure on the loins. The patient often complaining of severe fits of colic, accompanied with spasms of the abdominal muscles, and occasionally nausea and irritation of the stomach. Constipation is always present. The physical signs are the same as heretofore named—the purring thrill, pulsation, and harsh, bellows sound, synchronous with the heart's action.

TREATMENT.—A rational treatment of these cases would be such as would insure the greatest quiet of the circulation, and at the same time keep the blood rich in the elements of nutrition. Strict quietude of mind and body should be insisted on, though in the earlier stage of the affection, moderate exercise, by walking in the open air, should be recommended. A light, nutritious and easily digested diet, avoiding stimulants of all kinds, is necessary. Spontaneous cure takes place by continued deposition of coagulable lymph, and fibrinous coagula in the aneurismal sac; if the vital energies are taxed, or the circulation is disturbed, this can not occur.

When the circulation has too much force, or is too rapid from the irritation, the judicious use of small doses of Tincture of Veratrum or Digitalis proves advantageous. If neuralgic pains supervene, Extract of Conii with Tincture of Macrotys is useful. Local pain may be relieved by the Chloroform and Aconite Lotion applied to the part. In abdominal aneurism the bowels should be kept in a soluble condition, and the pain relieved by the administration of the milder narcotics. In two cases that have come under my notice (both epigastric) more relief was given by the application of the irritating plaster, continued so as to produce gentle counter-irritation, than by any other means.

PHLEBITIS.

Inflammation of the veins is of much more frequent occurrence than of the arteries; it is likewise marked by tolerably prominent symptoms. It is caused by wounds, injuries, local inflammation, disease of the bones or affections of the skin, giving rise to the formation of pus. It is of quite frequent occurrence as an element of puerperal fever, but excluding these cases the male is much more liable to it than the female.

SYMPTOMS.—Where the superficial veins are affected, the symptoms are very manifest, but not so distinct when the deep-seated are affected. It usually commences with a severe, sharp pain along the course of the vein or veins, which, if superficial, will become hard and tense, seeming under the skin like a hard, knotted cord. At the same time the skin presents a reddish line along the course of the disease, which sometimes changes to purple. Congestion and hardening of the adjacent parts take place, and if one or more large trunks are affected, the parts become œdematous and very much swollen.

The constitution sympathizes more or less with the disease; usually there is a chill—sometimes a marked rigor at the commencement—followed by fever of a remittent type. All the secretions are deranged; there is loss of appetite, headache, and considerable prostration. If promptly treated, in favorable conditions of the system, the disease goes no further, the coagula formed in the veins become organized; a collateral circulation is established and the inflammation ceases. In other cases the vein secretes pus, and pus is formed in the adjacent deposit, the result being the formation of an abscess. Or the vein secreting pus, the purulent matter is carried into the general circulation, the system becomes infected, and we have the low form of fever and other results, which will be noticed hereafter, under the head of pyæmia.

DIAGNOSIS.—Phlebitis of superficial veins may be readily diagnosed by the cord-like hardness in the course of the vein, redness of the surface, and pain and tenderness on pressure. Of the deep-seated veins we can not judge so readily, though the presence of symptoms of inflammation for a considerable

distance, and not affecting the tissues generally, will be pretty good evidence.

PROGNOSIS.—The prognosis is not unfavorable, unless the blood has been changed by some previous disease, so as to predispose to the formation of pus, when it becomes one of the most fatal affections known.

TREATMENT.—Prompt treatment saves a great amount of trouble in these cases, and renders the occurrence of the suppurative stage less liable to result. Using Aconite as the basis of the treatment, we add Rhus, Bryonia, Macrotys, Apis, Belladonna, Baptisia, or other remedies as may be indicated. Indeed the treatment will not differ in many cases from the treatment of an erysipelas. There is a case in which Veratrum is the remedy, the pulse being full, and in this case the part is penciled with the remedy. If the tongue is broad and atonic, with a *dirty* coat, give Sulphite of Soda in doses of ten to twenty grains every three hours. When the part shows dusky redness, and the surface is glistening, the tincture of Muriate of Iron is given in doses of ten drops every three hours. Podophyllin is useful when there is general fullness of tissue, and especially fullness of veins. If there is distinct periodicity, Quinine may be given in antiperiodic doses; or in other cases as a nerve stimulant, in doses of one or two grains.

As regards local applications there is some dispute. Some recommend warm applications, others cold; some stimulant, others sedative; so that the reader would have difficulty in making up his mind what would be proper. Of one thing we are certain, and that is, if there is the slightest evidence of accumulation of pus in the part from which the vein comes, let it out, by a free incision. If a wound, it must be reopened; if from fractures, the incision should reach the bone; if in amputation, any part that seems baggy should be incised; in these cases, the free use of the knife is oft-times better than any medicine. If the inflammation is of the superficial veins, the application of the Tincture of Muriate of Iron with a camel's-hair pencil the entire length of the vein, has with me answered a better purpose than any other means; I employ it freely and three or four times a day. Two or three thicknesses of soft cotton cloth may then be wet with Tincture of Aconite, ℥j; Tincture of Arnica, ℥ij; Fluid Extract of Belladonna, ℥ss; and laid over the course of the vein. Where the

disease is deep-seated, the application of Vinegar cold, is probably as good as anything, unless the pain is severe, when I would recommend a poultice made of a decoction of Cornus Florida and Wheat bran.

When there is suppuration, the Permanganate of Potash will be found an admirable remedy, used as a local application, and also as an injection. The Salicylic Acid and Borax will also be a good local remedy.

PYÆMIA.

This is the second or suppurative stage of phlebitis, in which pus being formed in the veins, is carried into the circulation and induces the severe symptoms below named. The pathology of the disease is not definitely settled, much discrepancy of opinion having existed. Four theories are named as accounting for the phenomena. 1st, That it is owing to the admixture of the pus with blood, the pus-cells being larger than those of the red globules are arrested by the minute capillaries, and give rise to secondary abscess. 2d, That it depends upon the property of pus to coagulate the blood, which occurring occludes the capillaries of a part, and thus gives rise to abscess. 3d, That it is owing to some irritant body, which, inducing capillary phlebitis, gives rise to the secondary suppuration. 4th, That it is caused by a peculiar poison which contaminates the system.

If we examine the cases of this disease closely, we find that in all there was unmistakable phlebitis, running or tending to the production of pus, and the inference is natural, that this is the cause of the mischief. That it does not affect the system, as in the first proposition, is proven by the fact that the white globules of the blood are as large as pus-cells, and can with difficulty be determined from them; and yet these readily pass the rounds of the circulation. That the second proposition is not a true explanation, is proven by the fact that pus does not coagulate the blood in living vessels, though it quickens it when drawn. In answer to the third, it is claimed and proven that normal pus is one of the most bland and innocuous of animal fluids, and by direct experiment, that no such results follow its introduction into the blood vessels. The fourth proposition is defensible from the fact that we know that ani-

mal matter undergoes changes which render it eminently poisonous, as exampled by variolus pus, the matter of glanders, certain septic changes in decomposing animal matter, which render it peculiarly dangerous, as malignant pustule, certain dissecting wounds, etc. We can not account for the production of this poisonous pus at one time and the bland innocuous fluid at another; neither can we always distinguish between them, any more than we can account for the production of small-pox, or vaccine virus, or distinguish between them.

SYMPTOMS.—Though pyæmia may result from the phlebitis, as heretofore described, yet in a majority of cases the severe symptoms are manifested at the commencement. The forming stage is generally very short, usually not more than twenty-four hours, during which the patient feels languid, and if from an injury or operation, complains of severe pain in the part. A violent chill or rigor now occurs, lasting from fifteen minutes to one or two hours, succeeded by violent reaction, and this by profuse perspiration. The rigor happens sometimes several times a day, at others but once, and occasionally none after the first one.

The symptoms are always severe when the disease is once established; the pulse is small, frequent and feeble; the mouth clammy, and the tongue covered with a dirty, brownish coat; the stomach is irritable, and nausea with vomiting occurs from slight causes; the bowels are irregular, the evacuations being dark and very offensive; the urine is high-colored, scanty and fœtid; the extremities are cool; the trunk hot and pungent; the mind wanders, and the patient has little command over the voluntary muscles; there is tenderness of the entire body, and sometimes excruciating pains in internal organs and joints. These symptoms increase day by day, bearing a marked analogy to the severest cases of typhoid fever.

Sooner or later in the disease the poison seems to localize itself by lighting up an inflammation of the lungs or other viscera, of the joints, and of various soft parts. These inflammations run a rapid course, and always terminate in suppuration, sometimes several parts being affected at the same time, or innumerable small absesses form in various parts of the body.

DIAGNOSIS.—The symptoms above named are sufficient to establish the diagnosis. The only disease with which it could be confounded would be intermittent or remittent fever, on account of its marked periodicity; but under no circumstances need this be the case if we reflect that these diseases never present such aggravated symptoms.

PROGNOSIS.—The prognosis is very unfavorable, though some few will recover; the duration of the disease is from four to twelve days, usually terminating fatally within the first week.

TREATMENT.—To remove the exciting cause, prevent decomposition of the blood, and support the system, are the obvious indications. The first may be accomplished in some degree, by giving a free exit to purulent accumulations; and in this, as in cases of absorption from an open suppurating surface, the use of means to change the condition of the parts, destroy the elements of decomposition, and favor normal pus formation. For this absolute cleanliness is imperative, and the use of a lotion of Chlorinated Soda or solution of Sulphate of Zinc. In place of them I now prefer a wet dressing of a solution of Permanganate of Potash, ℥j. to ℥ij. to water, Oj. If an external phlebitis exists, penciling the part with the Muriated Tincture of Iron is beneficial.

No means are so important in preventing rapid changes in the blood, as those that check the violent disturbances of the circulation.

If there is considerable excitement of the circulation I would advise Veratrum in full doses. But if the circulation is feeble, with tendency to stasis of blood, then Aconite with Belladonna or Rhus, according to indications, will be found preferable. These are continued throughout the treatment.

To antagonize the septic processes in the blood I know of no remedy so uniformly applicable as the Sulphite of Soda. We administer it in doses of twenty or thirty grains every three hours. When the tongue presents a dusky red color, and the coatings of tongue and sordes a brownish cast, the mouth being dry, Sulphurous Acid properly diluted will be found preferable. A solution of the Chlorate of Potash with Hydrochlorate of Ammonia taken freely, with the internal administration of the Tincture of Muriate of Iron, in doses of twenty or thirty drops every three or four hours, may be employed in some cases. If

there is much pain, so that the patient is rendered uneasy, and can not obtain rest, I should make a local application of Chloroform before and below the ears.

As soon as we have controlled the more marked symptoms by the treatment named, we will find it necessary to support the strength of the patient. When there is decided *remission* in the disease, the administration of an ounce of Brandy at such time will be found better than giving it in broken doses. In other cases we may give Quinine with Hydrastine, as named in typhoid fever. The patient should have a free supply of nutritive food carefully prepared, and given at regular intervals.

Irritation of the stomach must be especially guarded against; if severe at first, and accompanied with retchings and vomiting, a thorough emetic is advisable; if not so severe, it may be arrested by sinapisms to the epigastrium, and the use of an infusion of Peach bark. Animal broths and milk should be administered as freely as the stomach will bear them, and stimulants employed as may be necessary. The frequent use of the bath, alkaline to the trunk, stimulant to the extremities if there is coldness, is a very useful adjuvant to the treatment.

If evidence of local determinations to the internal organs should arise, dry cupping should be resorted to, and followed by stimulant applications; in some cases a blister would answer a good purpose. In addition, it is highly essential that normal circulation to the extremities and surface should be obtained, if possible. If the joints are affected, they should be painted with the Tincture of Muriate of Iron, and poulticed with the decoction of Cornus and Wheat bran before named; the same treatment is applicable to other external parts. When pus forms, it is good practice to give it exit by a free incision at the most depending portion, and promote free drainage.

EMBOLISMUS.

Obstruction of blood vessels by *emboli*, or clots, or fibrinous vegetations, has been noticed and studied of late years. Magendie, Cruvielheir and Gaspard have shown by experiment that foreign solid bodies floating in the blood, would obstruct the smaller blood vessels, and occasion inflammation and exudation. Virchow and others have reported cases in which coagula and fibrinous vegetations have been carried from the

point where formed, as in the heart or varicose veins, to other and distant parts, causing an arrest of circulation and fatal disease. In some cases, the obstruction being of the larger and important blood vessels, death has occurred in a short time after the first symptoms, or was immediate. Thus, M. Briquet reports a case in which the coagulum was carried from varicose veins of the leg (the saphena being inflamed) to the pulmonary artery. The symptoms were as follows: "After an excellent night she was seized by an undefinable sensation, and uttered a cry of alarm. She was found to be extremely pale, her features having undergone marked change. Her arms were convulsively moved, she complained of intense pain in the chest, and in a state of alarm declared she would be suffocated. The pulse was filiform, the heart beat tumultuously, but without abnormal sound, and she died at the end of twenty minutes." Post-mortem examination detected the existence of large clots in the saphenous vein, and an obstruction in the pulmonary artery, extending from the valves to its arch, formed by a clot.

Instances of the obstruction of the femoral, axillary and carotid arteries are named, in which sudden and alarming symptoms were produced, and other cases in which obliteration of the vessel occurred, the patient living for some time. It is supposed by Virchow, that obstruction of the smaller vessels of the brain by fibrinous vegetations from the heart, will account for many cases of sudden death from disease of this organ; and also for cases of gangrene without any appreciable cause. The symptoms are of course variable, and the only evidence of emboli that we have, probably, is the absence of pulsation below the obstruction. I have noticed embolismus here, not for the purpose of giving a treatment, which can not be done, but for placing the facts above noticed, as a guide to diagnosis in certain obscure cases.

DROPSY.

It is very difficult to decide under what head dropsy should be placed; but as it is now generally conceded that in many, if not a majority of cases, it is dependent upon some lesion of the blood, it may properly come in at the close of this chapter. We have already noticed some forms of local dropsy in other

parts of this work, and we will here confine ourselves to a general description of the disease.

Dropsy may be first divided into *idiopathic* and *symptomatic*, as it arises from disease of the blood, or from some local disease or change of function. In the first case it is either *active* or *passive; i. e.*, active, as caused by active circulation, determination of blood, or inflammation, as is witnessed in hydrothorax from disease of the pleura, ascites from disease of the peritoneum, and of the cellular tissue as the result of eruptive fevers; or passive, as the result of debility, impoverished condition of the blood, feeble circulation, and relaxation of the tissues. Symptomatic dropsy results from lesion of some part or organ, which interferes with the free circulation of the blood, as is seen in heart disease, granular disease of the kidneys, and some affections of the liver.

SYMPTOMS.—*Active* or *sthenic* dropsy usually occurs as a sequel of fevers or inflammations, or comes up during their progress. It is of frequent occurrence after scarlatina, and some affections of the viscera, and as dropsy of the serous cavities is associated with determination or sub-acute inflammation of the serous membranes. It may result from sudden arrest of the secretions of the skin and kidneys, the dropsy making its appearance with great rapidity. In these cases we will find the skin dry and harsh, the urine scanty and frequently acrid and scalding, the bowels constipated, the tongue coated, appetite gone, headache, and a hard, resisting pulse, increased in frequency some ten or fifteen beats per minute. These symptoms sometimes continue until the dropsy is fully developed, and then disappear, but at others they continue in an intermittent form throughout the entire disease. The dropsical effusion may be in the cellular tissue, or in one or more of the serous cavities, or it may affect both. Its duration is very variable, and it will sometimes pass off without assistance, though at others it is very stubborn.

Passive or *asthenic* dropsy occurs as the result of local or general debility, and especially of some change in the condition of the blood. Dr. Copland remarks, that "In its primary form it may be attributed chiefly to relaxation of the exhaling pores, and of the serous and cellular tissues, and to increased tenuity or alterations of the blood, independently

of any considerable structural change. It is sometimes caused by excessive sanguineous evacuations, or exhausting discharges; by the suppression of secretions, and by a deficient, watery, vegetable and unwholesome diet. The dropsy that sometimes prevails amongst the poor in times of scarcity is generally of this kind. It is usually characterized by a weak, unequal, small and frequent pulse, paleness of the lips, tongue and gums, flaccidity of the muscles, anhelation on slight exertion, feebleness of the joints, swellings of the lower limbs, or anasarca attending or preceding, or attending the effusion into the cavities of the trunk; an unhealthy appearance of the cutaneous surface, and absence of those symptoms which indicate the existence of visceral obstruction or disorganization."

Dropsy from *disease of the heart* is usually preceded by such evident symptoms of disturbance of the circulation that it is difficult to mistake it. The patient has had a sense of weight and pain in the præcordia, with palpitation or sense of oppression and faintness on taking active exercise, and other evidences of heart disease. It usually comes on slowly, making its appearance first as a puffiness of the face, hands and feet; the first in the morning on rising, the second in the evening. The effusion occurs in the chest and abdomen most frequently, and only occasionally as an anasarca. With the appearance of the dropsical effusion we find that the patient loses strength rapidly, the symptoms of disease of the heart increase, there is a feeling of weight in the præcordia, and it is impossible for the patient to sleep unless the head and shoulders are well raised; and in some cases it is impossible for them to lie in bed, either night or day.

Dropsy not unfrequently has its origin in disease of the *liver*, *stomach and spleen*, though we can not see any connection other than the effect that long-continued disease of these organs would have upon the blood. The dropsy that follows severe and protracted intermittent fever is almost invariably associated with disease of the spleen and liver, and proper treatment directed to those organs is indispensable to success. Among the most inveterate cases of dropsy are those that are associated with long-continued dyspepsia. In some cases, the *ascites* seems to result from obstruction to the passage of the portal blood through the liver, and is removed by measures

that will stimulate this viscus to action, and thus permit free circulation.

We have, in another place, noticed that albuminuria or Bright's disease of the kidneys, almost invariably produced dropsy by depriving the blood of a portion of its albumen, and thus destroying its plasticity and power to pass freely through the capillaries. Some writers contend that the kidneys are thus in fault in all cases of dropsy, though the disease spoken of may not exist. If this were so, however, we would always find albumen in the urine on examination, whilst we know that in very many cases, it is absent before or during the progress of the disease.

Dropsical effusion occurs in the cellular tissue, taking the name of *anasarca;* in the cavity of the peritoneum, *ascites;* in the pleural cavity, *hydro-thorax;* in the pericardium, *hydro-pericardium;* in the cavity of the arachnoid, *hydrocephalus;* in the tunica-vaginalis, *hydrocele;* and in the synovial membranes, *hydrarthrosis.*

In *anasarca*, the effusion is in the delicate net work of the cellular tissue, and at first confined to the superficial fascia, though as the disease progresses, it affects the deep-seated areolar tissue as well. In chronic or passive dropsy it appears first in the feet, usually in the form of œdema, and gradually extends upward to the body. In acute or active dropsy, it frequently manifests itself first in swelling of the eyelids, face and upper parts of the body. Frequently the lower half of the body is the principal seat of the disease, the upper extremities, face and trunk, being but slightly affected. The amount of effusion varies greatly, sometimes being comparatively slight, the parts being swollen and pitting on pressure, and at others being distended until the skin seems smooth and glistening and ready to burst. The parts are usually cool and to some extent numb, there being a feeble circulation of blood in them, and occasionally the distension becomes so great that the skin is ruptured or ulcerated and the fluid oozes out.

Ascites, or dropsy of the abdomen, occurs more frequently than any other form but anasarca. The symptoms are the same as are common to dropsy in general, with the addition of the feelings of unpleasant weight and distension of the abdomen. The diagnosis is usually not difficult, the regularity of the enlargement, dullness on percussion over the most de-

pendent portion, and resonance over the superior part, with the distinct succussion on palpation, are prominent signs.

As heretofore noticed, *hydro thorax* is attended with difficult and oppressed respiration, proportionate to the extent of the effusion. There is marked dullness on percussion over the most dependent part of the chest, which is changed by change in the patient's position; that peculiar sound termed ægophony is developed; the intercostal depressions are effaced; and we frequently have the evidence of succussion.

Hydro pericardium is with difficulty distinguished from hydrothorax, though when connected with this the situation of the dullness, and its confinement to one spot, though the position of the body be changed, is the best evidence. It is usually connected with disturbance of the action of the heart, and the patient can not in many cases remain in the recumbent position for any length of time.

DIAGNOSIS.—The diagnosis of anasarca is usually easy, as the enlargement is marked, and physical examination shows it to result from accumulations of water. The diagnosis of dropsy of the cavities is more difficult, but attention to the points above mentioned, and those laid down in the description of the diseases of the organs named, will suffice for their distinction.

PROGNOSIS.—In active dropsy the prognosis is usually favorable, except in dropsy of the pericardium which is always unfavorable. In asthenic dropsy, our prognosis will depend to a very great extent upon the causes of the attack, and the general health of the patient. Where dropsy is symptomatic, it will of course depend upon the character of the disease producing it; thus dropsy from disease of the heart, or Bright's disease of the kidney will be looked upon unfavorably; but if from temporary change of function of the kidney, liver, spleen, etc., we would expect a speedy cure.

TREATMENT.—In active dropsy I commence the treatment by the use of the special sedatives, as

℞ Tincture of Aconite or Veratrum, gtt. x.
Tincture of Apocynum, f℥ss.
Water, ℥v. M.

Give in doses of a teaspoonful every hour until the skin becomes slightly moist, and then every two or three hours, as

circumstances may require. To assist this, I direct the use of the alkaline bath and hot foot bath, or, if it can be given, the general warm bath, or in severe cases the vapor bath. If there is considerable derangement of the stomach, as is sometimes the case, it will be well to give a thorough emetic, of the Compound Powder of Lobelia in infusion. If there is much irritability of the nervous system, we would alternate with the remedies first named, the Macrotys and Gelseminum. As soon as the system has been brought under the influence of the remedies named, Quinia and Hydrastine should be given to the extent of four to six grains of each daily. This treatment is many times sufficient for the removal of the dropsical deposit, though should it fail it will be preparatory to that which follows.

Very generally we will find that secretion becomes better under the use of the above treatment, and if the dropsical deposit is not lessened, it has not increased. I do not deem it desirable in many cases to give a cathartic or diuretic until the hardness of the pulse and constriction of the skin have been removed, which usually occupies from one to three days. Now, we administer a hydragogue cathartic, and I know of none better for general use than the Compound Powder of Jalap and Senna, and Bitartrate of Potash, in equal parts, giving one drachm every three or four hours, daily, until copious watery evacuations are produced. Instead of this we may give

℞ Jalap, grs. xv.
Bitartrate of Potash, ʒss. M.

Give at one dose; or,

℞ Elaterium, grs. ij.
Bitartrate of Potash, ʒiv. M.

Triturate thoroughly and divide into eight powders, one of which may be given every three or four hours, until it acts briskly. The cathartic may be administered every day to the extent of producing two, three, or four watery evacuations daily, unless it gives rise to irritation of the bowels or exhaustion. As soon as the bowels have been freely moved, and not before, we commence with diuretics to increase the evacuation of water by the kidneys. A very good diuretic, though not a pleasant one, is—

℞ Acetate of Potash, ʒss.
Sweet Spts. Nitre,
Tincture of Juniper, aa. fʒj.
Water, fʒij. M.

Give a teaspoonful every two or three hours; or I sometimes employ an infusion of Hair-cap Moss or Eupatorium Purpureum. If there seems to be necessity for a stimulant, I know of nothing so good as the Gin Bitters taken freely.

In *asthenic* dropsy we may use the severe or the mild treatment as may seem best, being guided somewhat by the strength of the patient. Of the first many prefer Elaterium as a hydragogue cathartic, in doses of $\frac{1}{6}$ of a grain, with bitastrate of potash or alone. It must be used with care, for whilst some can take it to free catharsis without suffering, in others it produces great intestinal irritation or even inflammation.

Sulphate of Manganese is another excellent remedy, especially in intemperate persons, and when the liver is involved. *Ascites* is especially the form of the disease in which we think of the remedy. Sometimes no effect will be produced by it until the patient has been tapped, but then its action is marked in increasing the amount of urine as well as by stimulating absorption. The dose is usually one grain every three or four hours, to moderate action upon the bowels.

Apis proves an excellent remedy in some of these cases, stimulating a free discharge of water by the kidneys. It is especially indicated by itching and burning of the swollen parts, and of the uretha and meatus. The dose will be R Tinct. Apis gtt. x, Water ℥iv; a teaspoonful every three hours. When I was a boy they would administer the honey bee in infusion, drowning a dozen or twenty in a half pint of hot water, and giving tablespoonful doses.

Even yet, I have known the live bees put in a bottle and drowned in whisky.

Occasionally we may employ a specific treatment for dropsy with excellent success; and it has this to recommend it, that the remedies are pleasant and act kindly. I prefer the Apocynum Cannabinum, employing the tincture in doses of one to five drops, largely diluted with water. The Aralia Hispida may be used in the same way.

In dropsy from *heart disease* we would pursue the above plan of treatment, with the additional remedies demanded by the local disease. Dropsy from albuminuria has been already de-

scribed, but its treatment does not materially differ from other forms, further than the limited use of diuretics, and the means demanded for the disease of the kidneys. Dropsy from disease of the spleen or liver, following intermittent fever, should be treated as named for protracted intermittent, with the addition of the hydragogue cathartics and diuretics. In ascites from disease of the liver, we will endeavor to promote its action, and facilitate the circulation of the blood through it. We occasionally find a case in which, from irritation of the bowels and kidneys, we can not use the means recommended. In these cases I have obtained much advantage from the employment of Tannic Acid in doses of twenty grains four or five times a day, associated with such means as seem to be indicated by the condition of the system.

As regards the propriety of operative interference, there has been much dispute, some contending for it, others against it. In persistent cases of *anasarca*, I am satisfied that incisions into the cellular tissue, and followed by moderate compression with the roller, is sometimes attended with the best results. In *ascites*, tapping is frequently performed, but unless associated with proper treatment to restore tone to the exhalents, and to induce free secretion, it is only a temporary palliation. Tapping is rarely resorted to in *hydrothorax*, and only in cases in which the effusion is the result of inflammation of the pleuræ.

EXOPHTHALMIC GOITRE.

BASEDOW'S DISEASE.

This is one of several singular diseases that have been studied the past twenty-five years. In its marked form it is of very rare occurrence, and the cases are very intractable, but in a slight form we will see quite a number of them. It occurs in both sexes, but is far more frequent in the female, being about as nine to one. In both sexes it is associated with a wrong of the reproductive function, being markedly increased at the menstrual periods, and in the male being associated with want of reproductive power.

The reader will gather from the name that there is not only enlargement of the thyroid gland or glands, but there is also

disease of the eyes. The goitre is not the marked feature; indeed it is frequently very moderate in size, but even here there is an unusual pulsation in the thyroid arteries. But the expression of the patient's face is very singular, especially the prominence of the eyes, and their strange staring expression.

The patients complain of palpitation of the heart, and the action seems to be extraordinarily violent, especially the impulse on the wall of the chest. These palpitations are associated with a sense of oppression in the præcordial region, and difficulty of respiration. There is also marked and unpleasant pulsation in the arteries, now in one place, now in another. It may be the abdominal aorta, or the large arteries that spring from the arch of the aorta, the carotids, the thyroids, or in some, and the most unpleasant cases, the patient feels every pulsation of the arteries of the head and brain.

Trousseau describes the development of the disease as follows:

"A medical man is consulted on account of the capricious temper, the strange look about the eyes, and the palpitation of the heart; and, until the time when Graves's disease came to be described as a morbid entity, serious mistakes were frequently made. Practitioners who did not know this complaint thought that the peculiar mental condition of the patient, and her palpitation, were merely curious nervous symptoms due to anæmia or chlorosis, or to painful or irregular menstruation.

"The patient, however, especially if a woman, drew the practitioner's attention to the swelling in her throat, and mentioned that for some time past she had had a sensation of fullness and pulsation in that region; her statement was noted down, but was not taken into account, as at the outset the thyroid gland is not enlarged to a considerable extent. By degrees, however, as the throat swelled, the practitioner's attention was forcibly drawn to the coincidence of those three symptoms, palpitation of the heart, exophthalmos, and hypertrophy of the thyroid gland. This coincidence was looked upon as curious, and instances supposed to be analogous, in which it had been noticed, were recalled to mind, especially when the patient happened to be chlorotic. But as after all these three symptoms were rarely met with in combination,

and were not detected at the onset of the complaint, the cases in which they occurred were regarded as curiosities, and the facts observed, remaining uninterpreted, were as a sealed letter.

"Nowadays a mistake is less easily committed, and the disease will be recognized whenever the simultaneous or closely successive development of the various phenomena which characterize it is observed. Do not think, however, that the diagnosis is always easy. A certain degree of care is necessary, in order to recognize these phenomena in the beginning, and the form which they assume, when they are in an incipient stage, should be well borne in mind. You should thus suspect this complaint when you find a lustrous appearance of the eyes co-existing with palpitation of a violence out of proportion with the organic condition of the heart, and you should banish all doubt when you find, in addition to the above symptoms, marked increase in the pulsation of the vessels of the neck, and slight hypertrophy of the thyroid gland. Bear in mind, however, that the latter symptom may be late in showing itself, especially if the patient be a male. This is not the case in women: hypertrophy of the thyroid is well marked in them when they consult a medical man, and it keeps pace with the increase in violence of the palpitation of the heart and the prominence of the eyeballs. In several cases, however, which have come under my notice, the goitre was late in its appearance, although the patients were women."

Even in the graver forms of the disease, when the patient presents the unpleasant expression, and has the unpleasant symptoms named, there is not imminent danger to life. They may live on for two or three, or as in cases recorded, from nine to twelve years. In some it subsides, and though the eyes have somewhat the old expression, they are not so prominent, and the thyroid glands are less enlarged. In other cases it entirely disappears.

I wish especially to call attention to the minor form of the disease—the enlargement of the thyroid glands, with mental disturbance, the result of disease of the reproductive function. These cases have not the gravity, and they do not excite the interest of the more marked exophthalmic goitre, but they are common, and they require treatment. They surely point to menstrual derangement, and call for means to rectify these

lesions. There may be complete amenorrhœa, but usually it is only partial; or it may be associated with dysmenorrhœa. In two cases there was menorrhagia, if that could be called menorrhagia which consisted in a continuous discharge of blood from menstrual period to menstrual period. In these cases there was marked anæmia, and in one the exophthalmic feature was rapidly developing.

PATHOLOGY.—In regard to the pathology of the disease we are in doubt. We recognize a peculiar disturbance of the nervous and vascular systems, with reproductive excitement, whether this is a periodical occurrence, or is brought about by a present exciting cause. I have two cases in which the performance of the reproductive act was attended by most violent excitement of the heart, and unpleasant pulsation of the arteries. In one of these, a man, the symptoms became so severe, especially the throbbing in the heart, that he dared not attempt copulation. This is the theory of Trousseau. He says:

"Since we find that in animals rapid congestions of a variable duration return regularly under the influence of a physiological nervous cause, can we not suppose that a morbid condition which is characterized by rapid congestions, also varying in their duration, and recurring in paroxysms, may be due proximately to a modification of nervous influence, and should be consequently classed with neuroses? Besides, may not the congestion of the thyroid gland and of the eyeballs be regarded as a kind of pathological erection of those organs, and are we not justified by Mr. Claude Bernard's beautiful experiments on the sympathetic nerve, in comparing the morbid congestions of exophthalmic goitre to those abnormal congestions which that learned physiologist produces at will in different regions of the body by irritating or by cutting branches of the sympathetic?

"Exophthalmic goitre is, in my opinion, a congestive neurosis; and it is a morbid entity, because it presents special phenomena: palpitation and congestions of the thyroid gland and of the eyeballs. It is a pathological variety of the great class of neuroses, with a paroxysmal course, and should be regarded as entirely distinct from ophthalmias due to organic diseases of the heart, while it can not be confounded with goitre proper, of accidental or endemic origin."

DIAGNOSIS.—The nervous disturbance, the evident suffering of the patient, associated with enlargement of the thyroid glands, the strange expression of the face, and staring and prominent eyes, can not be mistaken. Usually it is not difficult to trace the connection to disease of the reproductive organs.

TREATMENT.—If in the extremely severe case it becomes necessary to select a remedy to give immediate relief to the palpitation of the heart, or throbbing of the arteries, it will be lobelia in doses of twenty drops of the tincture of the seed, repeated if there is occasion.

To relieve the nervous disturbance, Pulsatilla will be the remedy in the majority of cases, as it is also one of the remedies to rectify the reproductive lesion. In the inter-menstrual period the Pulsatilla may be given with Cactus, ℥ss. of each to water ℥iv; a teaspoonful four times a day. The indications for the Pulsatilla are the nervousness, despondency, and fear of impending danger.

Commencing one week before the menstrual period, we use Macrotys or Caulophyllum, associated with the Pulsatilla; usually ℥ss. of the tincture to water ℥iv, a teaspoonful four times a day, will be the proper quantity. This we continue from period to period until the discharge becomes normal.

If there is fullness of tissue, and tendency to œdema, we use Apocynum. In this case there may be acute menorrhagia, or the menstrual discharge may be pale and easily arrested. With the small *sharp* pulse, and burning of the eyes, the remedy would be Rhus.

In anæmia, with prolonged or excessive menstruation, I would advise Carbo-veg., the first trituration, in doses of one grain every two to four hours. In place of this a trituration of Ipecac may be used; this will be the better in cases where there is irritation and determination of blood.

Iron is not well borne as a blood-maker, and especially in the cases last named. Rademacher's Tincture of Copper will exert a better influence. The dose is small—gtt. x. to water ℥iv, a teaspoonful four times a day.

This is but an outline of the treatment, and I wish to keep it clearly in view as the treatment for the minor cases named, though it would also be the treatment for the graver form of the disease. The marked cases of Basedow's disease are so

rare that in ordinary practice we will not see a sufficient number of cases in a lifetime to determine a treatment. Indeed one may deem himself fortunate to see a single case.

BRONCHOCELE—GOITRE.

It is a little singular that goitre should have been regarded as a "surgical disease," when thus far surgeons have been unable to devise any operative means for its arrest, or for the extirpation of the thyroid glands, and the only treatment thus far effective has been wholly medicinal.

Physiologists do not pretend to tell us the use of the ductless glands, and though they theorize upon the spleen, they hardly do this much for the thyroid or thymus glands, and the supra-renal capsules. But we find that pathological changes in these are sometimes most serious. Disease of the supra-renal capsules (Addison's disease) is universally fatal; disease of the thymus glands have not been noticed as yet, but I am pretty sure that time will show a relation between an enlargement and change of structure that we sometimes see, and a very unpleasant arrest of blood-making; and so far as the thyroid glands are concerned, they are intimately associated with the reproductive function, and with the nutrition of the brain.

We have already considered the minor and acute enlargements of the thyroid glands in exophthalmic goitre, because I believe that their proper place, though other writers are careful to separate them, and give no consideration to the common ones. But evidentiy they are both closely related to disease of the reproductive function.

Goitre is a chronic enlargement or hypertrophy of the thyroid gland. But one lobe may be enlarged, or both lobes without the isthmus, or there may be uniform enlargement of both lobes and the isthmus. In Europe it is common in the deep valleys of the Alps, and is frequently associated with Cretinism. The enlargement is here wonderful, the gland being eight to fourteen inches in length. In a case that I saw it would have weighed fifteen to twenty pounds. In this country we rarely have such cases, the gland attaining the size of a fist, or two or three times this size.

If we except the sensation of fullness and slight pressure, there is usually but little trouble from the enlargement, and these unpleasant sensations are quite as marked in slight as in the severer cases. But once in a while the pressure upon the larynx and trachea is very unpleasant, and the patient complains of unpleasant throbbing of the arteries of the neck, and becomes very restless and nervous. I think there will always be some impairment of the mind as well as the reproductive power, though it may not be very marked.

DIAGNOSIS.—If one has studied the anatomy of the neck, there can be little difficulty in the diagnosis, as hardly anything can simulate it. The cervical lymphatics are not in this situation; tumors will develop in the sterno-mastoid depression; indurations or inflammatory deposits will attach the structures to one another and to the skin. In goitre, however, the skin moves freely upon the gland, and the gland moves freely on the larynx and trachea below, and one can study the anatomy of the part by the touch.

TREATMENT.—We do not propose to cure or even relieve the cases of long standing, where the gland is very much enlarged, but we can arrest the progress of the disease in its earlier stages. The old method was to use Iodine as a local application, and internally as much as the patient could take without disturbance, and sometimes this would be attended with success. The part would be painted with the tincture of Iodine once a day, and Iodide of Potassium, or the Iodine in pill form, given freely.

In place of this I prefer the Iris Versicolor, which certainly has a specific action upon the thyroid gland. It is of especial importance that we have a good remedy. The tincture should be prepared from the fresh root, gathered at the proper season, and that shows the purplish mottled appearance when cut. About ten drops every three hours is the proper quantity. The tincture of Iris may be used as the local application, applied as a wet dressing at night. But should this fail, I would advise the irritating plaster carried to suppuration.

After what has been said we will not mistake the cases of moderate enlargement of the thyroid in women, associated with menstrual derangement, for the goitre now described.

CHAPTER V.

DISEASES OF THE DIGESTIVE APPARATUS.

This important class of diseases should be thoroughly studied, as some derangement of the digestive apparatus is met with in almost all forms of disease. To obtain a clear idea of the nature of these affections it is necessary to have a distinct knowledge of the organs which are the seat of them, and of the functions they perform. No animal function displays a greater diversity of means for its performance than that of digestion, and none plays a more important part in the economy, or has more extended sympathies; being the center from which all parts originally derive the material for nutrition, we can well understand why any change of function in these parts, if it continues, will eventuate in disease. The close sympathy existing between this and other portions of the body, accounts for the general derangement that follows disease here, and the almost invariable functional derangement of this apparatus that exists during other diseases.

ODONTALGIA.

Toothache is considered a minor matter by those studying medicine, but not by those suffering the pain; and every one who practices medicine should understand how to treat it skillfully. It may be divided into three forms: irritation of the exposed nerve; inflammation of the dental pulp; and inflammation of the periosteum investing the alveolus and fang of the tooth.

The first may be recognized by the intermittent character of the pain, the intermission being so perfect frequently that there is no evidence of disease remaining.

Inflammation of the pulp may be recognized by the continuous character of the pain, the soreness of the carious portion of the teeth, and some constitutional disturbance. If it is not arrested, it goes on to suppuration; inflammation extending through the dental canals, affects the apex of the fang, pus forms at that point, and necessitates the removal of the tooth. Dentists not unfrequently meet with this after filling a tooth.

The third variety is periostitis, and is recognized by the feeling of tension, the tooth seeming to be elevated above its fellows, tender to the touch, and a continuous dull aching feeling, as if the tooth was some foreign body.

TREATMENT.— The first form may sometimes be relieved by local applications, as the Tincture of Aconite, Morphia thoroughly triturated with an equal part of Alum, Tincture of Opium and of Gelseminum, or the applications of the Essential Oils or of Creosote. The last is employed with advantage for some days to remove the soreness, before getting the tooth filled. Counter-irritation behind the ears, or to the back of the neck, the hot foot bath and a mild cathartic are appropriate means. If distinctly periodical, it may be sometimes arrested by the use of Quinia, as for any other intermittent.

The other two cases are cases of inflammation, and should be treated like all other affections of this class, to promote resolution and preserve the organ. In this case I put the patient upon the use of Veratrum in full doses, if the disease is of a sthenic character, frequently adding Gelseminum, if there is much irritation of the nervous system. But if the face is pallid, and the circulation feeble, Aconite and Belladonna will be the best remedies. Occasionally, a brisk cathartic, followed by an alkaline diuretic and opiate, will hasten the cure; counter-irritation by the hot foot bath, cups or blister behind or before the ear, or to the nape of the neck, is useful, as are also, hot fomentations to the face. As a local application when the pulp is affected, the Tincture of Aconite, or Creosote with Morphia, are the best applications If of the periosteum, the gum may be penciled with Tincture of Aconite or Belladonna. If pus forms in the alveolus, it is possible sometimes to save the tooth by making a free incision down to the collection with a long gum lancet. This treatment should only be adopted in cases where the tooth is likely to be

of service after proper filling, and should not be adopted in other cases, as extraction is the quickest and true course when the tooth can not be filled. If the toothache is stopped by the means above named, no time should be lost in consulting a good dentist, and having the proper work done.

STOMATITIS.

Inflammation of the mouth manifests itself in many different forms, and may be either a primary or secondary affection. Many forms are very troublesome to the patient, and being connected with some other affection, or a general cachexia, are difficult to remove.

Simple stomatitis is characterized by heat, dryness, slight swelling of a part or the whole of the mucous membrane, and an erythematous redness of the part inflamed. It is not an unfrequent complication of diseases of the intestinal apparatus, and the eruptive and other fevers. Becoming subacute, the tenderness disappears to some extent, but there is increased activity of the mucous follicles, and the secretion of a ropy mucus.

In treating this affection it is necessary that any irritation of the stomach be removed, and the bowels kept soluble; this may be accomplished by the administration of an infusion of the Compound Powder of Rhubarb and Potash. Then the use of any simple astringent wash will relieve the local disease; as, make a strong infusion of sage or privet, sweeten with honey, and to half a teacupful add ℥i of pulverized Borax; an infusion of Hydrastis or Coptis is excellent, as is also a solution of Chlorate of Potash. In many cases minute doses of Phytolacca will cure.

Chronic stomatitis may be the result of the simple form just named, when it is chiefly confined to the gums, and often kept up by carious teeth. In some cases the gums become spongy and red, and sometimes so tumefied as to look like fungous growths; in others the gums ulcerate and are finally destroyed, the alveolar processes are absorbed, and the teeth are loosened and fall out, or have to be extracted on account of their tenderness.

A more malignant form of chronic stomatitis, often lasting for years, is met with; almost the entire mouth and tongue are

affected, the mucous membrane is of a dusky purple color, looks somewhat honey-combed from previous ulceration, yellowish vesicles spring up and soon discharge, giving rise to small ulcers, some of which are constantly present; the mouth feels hot, is exquisitely tender, sometimes bleeds easily, the gums and teeth are sore, and the patient can not eat solid food except with great pain. Various derangements of the system exist with this form of stomatitis, and require careful diagnosis.

The *treatment* of the first form of stomatitis named is usually not difficult. Carious teeth and old fangs should be removed at the commencement, and a wash of Myrrh and Hydrastis, or, equal parts of Myrrh, Orris and Charcoal used freely. If this does not seem sufficient, a strong decoction of equal parts of Alnus, Rumex and Quercus Rubra may be employed, alternated with a solution of Chlorate of Potash.

In the last form, I usually direct equal parts of the Tincture of Muriate of Iron and Glycerine, sometimes penciling the parts with the first named, if very soft and spongy; this may be followed by the use of a decoction of Cornus and Rumex; the washes first named may also be used. The internal treatment in these cases is very important, the Compound Tincture of Corydalis in doses of a teaspoonful, with five grains of Chlorate of Potash, may be given every four hours. The Chlorate of Potash answers an admirable purpose and should not be neglected. In many cases there is an atonic condition of the stomach and bowels, and small doses of Podophyllin with Phosphate of Hydrastia will be of service.

PSEUDO-MEMBRANOUS STOMATITIS.

Under this head Copland describes a form of sore mouth, which appears in the shape of small, irregular patches of a greyish white color, the parts surrounding being red, painful and hot. "The breath is fœtid, and the submaxillary glands enlarge. As the disease proceeds, the patches of membranous exudation extend, become more or less detached, and are succeeded by others, and the intervening surfaces are red and swollen. The tongue is swollen and the mouth continually open, allowing the escape of altered saliva. The enlargement

of the lymphatic glands increase, the face swells, the breath becomes more fœtid and the pulse more quick and rapid, and generally soft, open, or full and weak." The disease sometimes extends back to the throat, and even involves the mucous membranes further, sometimes occasioning imminent danger. It may become chronic and continue weeks or months.

TREATMENT.—With small doses of Aconite we associate Phytolacca, Rhus or Baptisia, as indicated. When the tissues are full, the first; if contracted and hot with vivid redness, sometimes fissured and bloody, the Rhus; and if there is dusky discoloration, the Baptisia. The remedies are used in the ordinary small doses, and the Phytolacca and Baptisia may also be used as washes. When the tongue is broad and pallid, dirty—a rare case—Sulphite of Soda is the remedy.

As a local application, the Hydrochloric Acid with Honey, one part to three, four or six, will be found as good as any thing; it should be applied with a small piece of sponge attached to a stick, to the membranous exudations, being careful to reach them all. At the same time, a saturated solution of Chlorate of Potash, with a small portion of Glycerine, may be frequently used. An infusion of Cinchona, acidulated with Hydrochloric Acid, has been recommended subsequently, but I would prefer the decoction of Rumex, Alnus and Quercus Rubra.

APTHÆ.

We may include under this head thrush and follicular inflammation. It makes its appearance in the form of small white points or patches on a red and inflamed base. The mouth is tender and irritable; so much so, that it is with difficulty that the child can nurse, and sometimes this becomes impossible. Occasionally the disease spreads until the greater part of the mouth is affected. Usually there is some disturbance of the nervous system, and more or less fever; the stomach is usually irritable and the bowels irregular.

TREATMENT.—I prefer the direct treatment to any other in this case. To half a glass of water add three to four drops of tincture of Aconite and ten to twenty drops of tincture of Phytolacca, and give a teaspoonful every hour. There is

an occasional case with irritation of the stomach, the face being sallow and the lips full and white, in which we alternate minute doses of Nux with this; and still another with irritation of the bowels and diarrhœa, in which we add the Ipecac. In severe cases the inunction of Quinine will be found of much importance.

Where the disease persists after this treatment, give the little patient Quinia and Chlorate of Potash. In severe cases, an application of one part of dilute Sulphuric Acid to fifteen or twenty parts of Honey may be used, the ulcerated surfaces being occasionally brushed over with it, or Gallic Acid in solution, or finely powdered Tannin sprinkled on the ulcers, may be used. Dr. Jenner recommends a solution of Sulphite of Soda, ℥j. to ℥j of Water; he supposes the disease due to a parasite which this destroys.

ULCERATIVE STOMATITIS.

This is a disease of childhood, but is sometimes met with in the adult. It occurs chiefly in children who have not been well nourished, or that live in damp, unhealthy places; but not invariably, as some of the worst cases I have met with have been those in good circumstances, having all the comforts of life.

On examining the mouth, we find the gums red, swollen and spongy, and where the ulcer is situated, a greyish, pultaceous material, on removing which, the surface is raw and bleeding. It generally commences on the front part of the gums, but gradually passing between the teeth, affects the posterior surface; continuing, it destroys the gum both before and behind, and passing to the lips and cheeks adjacent, forms irregular ulcerations covered by the same material. If it continues long, the tongue is swollen and is marked by the teeth: the saliva becomes thick and very offensive, often streaked with blood, the gums bleeding at the slightest touch. The stomach is usually deranged, the bowels irregular, the tongue covered with a dirty coat, and more or less febrile action.

TREATMENT.—In the commencement of the disease, Chlorate of Potash internally and as a wash, seems to be almost a specific. It should be administered in doses of three grains every

four hours, and the mouth washed sufficiently often to keep it clean; from six to ten days are usually sufficient to effect a cure In some of these cases Rhus will exert a specific action, and with small doses of Aconite will effect a cure. In others the Phytolacca may be used, and in others the Baptisia. When the tongue is full, pallid and dirty, give the Sulphite of Soda, and if there is evidence of intestinal atony, the small dose of Podophyllin and Phosphate of Hydrastia. The ulcers may be touched with Nitric Acid, using a pine pencil to make the application. Dr. Mackenzie recommends Sesquicarbonate of Ammonia, in full doses, in place of the Chlorate of Potash, and I have no doubt from my experience with the preparations of Ammonia in diphtheria and scarlet fever, that it will answer an admirable purpose.

MERCURIAL STOMATITIS.

This is the most common form of manifestation of chronic mercurial poisoning. It may follow the administration of Mercury in a short time, or not for months or years, and may be occasioned by the smallest, as well as by the largest dose of the mineral. It is rarely met with now, since Mercury is going out of date, but formerly it was of frequent occurrence. The symptoms are, to some extent, like those in the last form. The mouth feels unusually hot, and is sometimes sensible of a coppery or metallic taste; the gums are swollen, red, and tender; ulcers make their appearance and spread in all directions; the saliva is thick and stringy, and has that peculiar, offensive odor characteristic of mercurial disease; the tongue is swollen and stiff, and there is some fever, with derangement of the secretions. The disease progressing, it destroys every part that it touches, until the lips, the cheeks, and even the bones, have been eaten away before death comes to the sufferer's relief.

As the disease is produced by a specific poison, it is desirable to use means to counteract it. Sulphur has been employed for this purpose, and is the only agent that seems to exert a specific action. It may be given in powder, or as Sulphurous Acid, or Sulphate of Iron, and also used as a bath if desirable. The ulcers should be touched daily with

the dilute Sulphuric or Nitric Acid as heretofore named, it being freely and thoroughly employed, and a soothing astringent gargle, as

℞ Solution of per Sulphate of Iron, ʒij.
Glycerine, ʒij. M.

or, a lotion of Borax and Honey. The strength should be supported by the use of tonics and stimulants, nutritious and easily digested food, and moderate exercise.

GANGRENOUS STOMATITIS.

Cancrum oris may follow *stomatitis ulcerata*, previously described, in which case the ulcers assume a phagedenic character and spread rapidly, destroying all tissues that they come in contact with. The secretions of the mouth are excessively fœtid, the stomach and bowels irregular, and the little patient very much prostrated; if it is not speedily arrested, it passes to a fatal termination.

True gangrenous stomatitis commences with a swelling and hardness of the cheek and lip, the tumefaction externally having a blanched, glossy appearance. On examining the mouth we find but little tenderness, the part swollen being slightly redder than usual, and having in its centre an ash-colored eschar. The tongue is pale and somewhat loaded, the stomach and bowels deranged, and there is marked exhaustion and cachexia, with languor and restlessness.

The eschar soon spreads, sometimes extending to the lips and gums, and is attended with a copious discharge of saliva, which soon becomes turbid; the breath is very offensive. The integument next becomes affected, a small vesicle or pale ashy spot forming, soon becomes livid and sloughs. The ulceration now spreads rapidly, destroying the muscles, integument, and bones, until sometimes previous to death, the child could not be recognized.

TREATMENT.—In the early stage I should commence the treatment by the administration of an emetic, following it with Quinia in full doses, Chlorate of Potash, and the mineral acids. As a local application externally, there is nothing better than a Terebinthinate embrocation, or, if sloughing is feared, Sulphate of Zinc ʒj, to Water ʒij. The ulcer should be penciled freely once a day, with the dilute Nitric or Sul-

phuric Acid, being careful to reach all parts of it, or, if severe, use the strong acid. This may be followed by washes of Chlorinate of Soda, Chloride of Lime, or Creosote, with Camphor and Myrrh; pure air, nutritious diet, and perfect cleanliness, are important elements of success.

NURSES' SORE MOUTH.

Some years ago, a sore mouth prevailed extensively among nursing females; of late, it has become rare in this section, though in some parts of the country it is still prevalent. It usually commenced some days after confinement, but occasionally made its appearance in a mild form during the last period of gestation. It was frequently preceded by heartburn, or pyrosis, sometimes during the entire progress of gestation. The first indications of it were a feeling of heat in the mouth, with slight tenderness, and increased secretion of saliva, which seemed to irritate the inflamed surface.

On examination, the mouth would be found reddened, the mucous membrane tumefied, and where the disease had become severe, small vesicles terminating in ulceration would make their appearance; commencing on the lips or tongue it would gradually pass back until it involved the entire mucous membrane, and in some cases extend to the pharynx, the œsophagus, and finally pass through the entire intestinal canal.

In these cases, as the disease advanced, it would produce marked irritation of the parts invaded, of the stomach and of the bowels, occasioning great prostration from arrest of digestion. It would sometimes last during the entire period of nursing, and only cease when the child was weaned.

TREATMENT.—I believe that proper attention at confinement is important in the treatment of these cases, and that the first symptoms of sore mouth should be met by specific treatment. If we give Aconite for the milk fever, Macrotys to relieve the after pains, Dioscorea if there is much soreness of the bowels, and Chlorate of Potash if the lochia is fetid, we will do much to avert after unpleasantness. It is singular, but the Phytolacca exerts a very decided influence upon the lesions incident to the puerperal state. It is the remedy for mam-

mary irritation, caking of the breasts, painful lactation, and inflammation; for some of the troubles of the nipple; and it is also a remedy for the sore mouth of either mother or child. I usually prescribe it as follows: R Tincture of Phytolacca gtt. xx, Tinct. Aconite gtt. v, Water ℥iv; a teaspoonful every one or two hours.

After trying various means, I finally discarded all mouth washes, using the general treatment above named, and recommending the smoking of Tobacco three or four times a day. This, though an unpleasant treatment, was uniformly successful, the disease in some cases being radically cured, but in others requiring a resort to the remedy every few days or weeks.

I have also been using the Collinsonia as a specific for this form of sore mouth, and with excellent success. True, the cases have been limited, but the benefit was so decided, that I have strong hopes it will be found uniformly successful. I prescribe it in the usual way: R Fluid Extract of Collinsonia, Simple Sirup, aa., a teaspoonful four times a day.

SORE THROAT.

We have no technical term that will answer to designate the different lesions that are grouped together under the name of *sore throat*. The situation of the disease varies in different cases. In some the inflammation is of the fauces, tonsils, and base of the tongue; in others it is of the pharynx proper, and in others still, it involves the posterior nares, the velum, and to some extent, the larynx. The character of the disease also varies in different cases. In some, it seems scarcely more than an irritation; in others, it is an acute erythematous inflammation; in others, the deeper tissues are involved, and there is considerable swelling; and in still others, the inflammation progresses to change of structure and ulceration.

Causes.—The most common cause of sore throat is cold, though we can give no reason why it should so frequently affect the throat. In some cases, it seems to be associated with gastro-intestinal irritation.

SYMPTOMS.—The symptoms of sore throat are plain. The patient locates the disease, complaining of heat and soreness of the throat, and painful deglutition. Upon exposing the throat to a good light, we see the mucous membrane swollen and reddened, and presenting the evidences of inflammation.

In some the redness is light, and the inflammation is erythematous. In others the sub mucous tissue is more involved, and there is a fullness of the structures that indicates effusion. In others the color is somewhat dusky or livid, and the part presents the evidences of an enfeebled circulation. The first form is acute, and soon culminates, and passes away; the second recurs often in the individual, and is sometimes very slow and persistent.

In some of the more stubborn cases, though the disease is not chronic, the structures of the throat are constantly enfeebled, and the person suffers from frequent recurrences of sore throat through the cold and changeable months of the year.

TREATMENT.—The treatment of simple erythematous sore throat is an easy matter. We direct that the .cold vinegar pack be applied on going to bed, and the neck thoroughly sponged with cold water in the morning, and the cold-water pack will answer as well in many cases. As a gargle, we usually prescribe Chlorate of Potash, ℥i. to water, ℥iv.

When the inflammation runs higher, I put the patient upon the use of Aconite in the usual doses, use the wet pack, and the gargle of Chlorate of Potash. In some cases, the Aconite produces an unpleasant sense of constriction in the throat, when we substitute Veratrum for it. The use of chlorate of Potash, thoroughly triturated with Gum Arabic and Sugar, and dissolved upon the tongue, will sometimes answer better than the gargle.

When the mucous membrane is tumid and dusky, I prefer the use of an infusion of Baptisia to the gargle above named. In place of this, a strong infusion of Hamamelis, or one part of the Distillate of Hamamelis to five parts of water, will make an excellent gargle. In these cases I use Belladonna and Aconite together, as the internal remedy.

If ulceration results, we may employ the gargle above named, the Baptisia being preferred, and the points of ulceration may be touched with Nitrate of Silver. In these cases it will be

well to put the patient upon the use of Sulphite of Soda, if the tongue is broad and pallid, or upon Tincture of Muriate of Iron, if somewhat dusky.

When there is a weakness of these mucous membranes, and a tendency to frequent attacks of sore throat, the patient may be put upon the use of the remedies named in chronic pharyngitis. I like the action of the Collinsonia and Hamamelis here, and frequently depend upon them. The Stillingia employed as there named, is also an excellent remedy. But in these cases, we will obtain much advantage from the free use of cold water applied to the neck and shoulders in the morning, the throat being gargled with *cold* water.

CYNANCHE MALIGNA.

Malignant sore throat usually prevails as an endemic, sometimes as an epidemic, and occurs most frequently in the winter and spring. The cause is somewhat obscure. For some reason the tissues of the throat are weakened, and a low grade of inflammation is set up. There is, doubtless, blood poisoning, as we observe in analogous cases.

PATHOLOGY.—There is a low grade of inflammation, of which malignant sore throat and epidemic dysentery are examples, that most frequently has its origin in some local miasm, animal or vegetable, which affects the atmosphere of limited portions of country. All the symptoms point to a poisoning of the blood, and depravation of this fluid, and consequently of the secretions, and of nutrition, as one of the principal elements of the disease. The local disease, however severe, would not occasion uneasiness, if the general health was good, but with the depravation of the fluids and solids and the attendant prostration, the disease becomes one of the severest we are called to treat.

SYMPTOMS.—For two or three days, sometimes for a week, it is noticed that the patient looks pallid, his skin waxy or pasty, and that there is a want of expression in the countenance. The breath is also bad, the tongue broad and pale and somewhat loaded.

In some cases the disease is fully announced by a chill, of longer or shorter duration. But in others there is such a

gradual increase in the symptoms that it is difficult to separate the forming stage from the fully-developed disease.

When the physician is called he finds evidences of a general and a severe local disease. The pulse is soft, easily compressed, and increased in frequency from ten to thirty beats per minute. The extremities are kept warm with difficulty, the skin is pallid or sallow, and presents a peculiar waxy appearance, looking many times as if it was œdematous, and would pit on pressure. The face is pallid and expressionless, with a dark line under the eyes, which also are dull, with dilated pupils. The bowels are irregular, the fæces clay-colored and papescent; the urine free, pale, and of low specific gravity. There is no appetite: indeed, from the condition of the mouth and throat, there is disgust for food.

On examining the mouth and throat we find the mucous membranes pallid, the tongue broad, pitting where it comes in contact with the teeth, and covered with a pasty, white coat. The mucous membrane of the throat is swollen and discolored; in some cases it is livid, in others of a dusky-red, and in some few it presents a peculiar blanched appearance. The tissue seems relaxed and flaccid, and the circulation sluggish.

In a couple of days small points of ulceration will be seen, sometimes superficial, at others with a tendency to extend in depth. These ulcers increase in size more or less rapidly, according to the severity of the disease, and the throat will present a remarkably ragged and foul appearance. In very severe cases the ulcers pass through the mucous membrane and invade the cellular tissue, so that in fatal cases the structures are destroyed to a greater extent than we would deem compatible with life, for some hours before death ensues.

A distinctive symptom of malignant sore throat is the change in the tone of the voice; it is not so much hoarse as hollow and sepulchral—as a musician would say, "it has lost its timbre."

DIAGNOSIS.—This disease is readily recognized by the fetid breath, the abundant secretion from the throat and mouth, and by the peculiar relaxed condition of the structures. Add to this the general cachexia, which is peculiar to this, and, to some extent, to cancrum oris, and we have a grouping of symptoms that can not be mistaken.

PROGNOSIS.—Though the disease is a very unpleasant one, and attended with such depravation of the fluids and solids, the prognosis is not unfavorable. A large majority of cases will recover, probably as much as ninety or ninety-five per cent.

TREATMENT.—The treatment of cynanche maligna will be both constitutional and local. We want to antagonize the septic influence, improve the circulation of the blood, increase the tone of the system, and place the stomach in condition to receive and appropriate food, and re-establish secretion.

Aconite and belladonna may be given in small doses, to improve the circulation. Under their influence we find the pulse becoming stronger and more full, the capillary circulation better, and the temperature of the body more uniform.

Of the antiseptics I prefer Sulphite of Soda in the majority of cases, giving it in the usual doses, every three hours. In some cases Chlorate of Potash may be used instead, or alternated with the Sulphite. Triturated with Gum Arabic and sugar, as named for diphtheria, will probably be the best form of administration. The Baptisia in infusion is an excellent antiseptic, and may be associated with either of them.

In addition to this, I prescribe Quinine in stimulant doses, sometimes alone, at others in combination with Hydrastine. The dose will be about two grains, three or four times a day. Tincture of Muriate of Iron can also be used with advantage in some cases. It may be especially named as an important remedy in those cases which manifest an erysipelatous tendency.

The local means will vary in different cases. In the milder ones a decoction of Baptisia, used as a gargle, will be sufficient. In others we may alternate this with a gargle of Chlorate of Potash, and in others the Sulphite of Soda will answer a good purpose. In those cases where the tissues are relaxed, and the ulceration progressing rapidly, the Permanganate of Potash will be the most powerful, as well as the most certain, local remedy we can use. We would make the solution of the strength of one drachm of the salt to one pint of water. When it is used with the pencil or probang it may be applied much stronger than this.

We find some patients who cannot use a gargle to advantage, and in some of the severe cases the throat is so paralyzed as to prevent its use; in these we will have to employ other

plans for local applications. I do not like the use of the probang to make local applications to the throat. Instead of this I use inhalation, preferring the *spray apparatus*, either air or steam, to any other apparatus. But it does not require an instrument, for, as we have already shown, an inhalation can be given with nothing but a vessel to hold the fluid and a heated iron to raise a vapor. The vapor of vinegar and water answers an excellent purpose, as does an infusion of Tansy, or of Baptisia. In using the spray apparatus we may use the same remedies named for gargles. A solution of Carbolic Acid, grs. v. to grs. x., to water ℥j. has been spoken highly of. I have also used the Sulphurous Acid alone, or diluted with water, with excellent results.

The external application in this, as in many other diseases of the throat, is a flannel wrung out of cold vinegar, with a dry flannel over it. We call it the vinegar pack, but a cold water pack to the throat will answer the purpose.

DYSPHAGIA.

The act of deglutition is performed by the fauces, pharynx, and œsophagus, hence *dysphagia*, or difficulty of swallowing, becomes one of the most prominent symptoms of disease of these parts. The causes of dysphagia are varied, and may be summed up as follows: 1st, From disease of the fauces, tonsils, or palate. 2d, From inflammation of the pharynx or œsophagus, or from local suppuration. 3d, From disease of the larynx. 4th, From paralysis of the muscles. 5th, From spasmodic stricture of the œsophagus. 6th, From structural change, stricture, ulceration, cancerous disease and pressure of adjacent parts, as from presence of aneurism or other tumors.

Dysphagia from the first named causes needs but to be mentioned at this place, as we have considered these diseases heretofore, as also the principal diseases of the pharynx.

Inflammation of the cellular tissue of the pharynx and œsophagus, is of rare occurrence, but may result from injury, or from pyæmia. In this case there would be marked constitutional disturbance, more or less dyspnœa and great difficulty of swallowing. If the inflammation was diffused, the patient would pass rapidly into a typhoid condition, with extreme dysphagia.

Examination of the neck and throat would enable us to determine the character of the difficulty.

The *treatment* should be active: a brisk cathartic, an alkaline diuretic, with a suitable portion of the special sedatives, would form the internal treatment. The hot Mustard foot bath, with the general bath and sinapisms to the spine, would be valuable adjuvants. The neck should be freely cupped and scarified, followed by warm applications. If pus should form, the dysphagia being great, and the constitutional symptoms severe, it is necessary to give it an outlet, even though deeply seated. The system becoming much depressed, it should be supported by the employment of Quinine, the free use of stimulants, and nutritious food.

Diseases of the larynx give rise to dysphagia only when there is necrosis of the cartilages, and contingent inflammation and suppuration of the adjacent cellular tissue, except in very severe laryngitis, and in syphilitic ulceration, affecting the epiglottis. Severe dysphagia sometimes occurs in chronic phthisis from ulceration of the epiglottis, and is one of the most trying complications of the complaint.

This may be mitigated to considerable extent by the inhalation of the vapor of Vinegar, or of Iodine; and sometimes by the use of a strong solution of Nitrate of Silver, directly applied to the parts affected.

Paralysis of the muscles may result from laryngitis, from shock, or from cold as in aphonia. It is usually but partial, the act of swallowing being performed with marked difficulty, owing to want of action of certain groups of muscles. I recollect one case in which, for some weeks, the patient could swallow only as he would grasp the larynx with the hand and elevate it.

This may be removed in many cases, by the use of stimulant local applications to the pharynx, as Tincture of Myrrh, Capsicum, Nitrate of Silver, etc. Or, Electricity may be used with advantage, passing the current from the spine through the affected muscles. Internal remedies may be employed, as the Extract of Nux Vomica, Ergot in doses of five drops four or five times a day, or the infusion in larger doses: the Rhus Toxicodendron and Staphysagria, may sometimes be employed.

Spasmodic stricture of the œsophagus occurs principally in young persons of a nervous habit, and most frequently in females when there is irregularity of the menstrual function,

impaired digestion and hysteria. We recognize it from its sudden appearance, and the condition of the patient; spasmodic stricture sometimes is present during organic diseases of the the œsophagus, greatly aggravating the patient's condition.

The use of fluid food for some time, demulcent drinks, with Tincture of Gelseminum in doses of ten drops every three hours, with aperient enemata and hot fomentations, will usually afford relief in a short time. A tonic and anti-spasmodic treatment should then be adopted, as of Quinine, Hydrastine and Bromide of Ammonium, with means to regulate the menstrual function, if a female; out door exercise with cheerful occupation of the mind, and the daily use of a salt-water bath, with brisk friction to the spine, will materially aid the treatment.

I have employed Pulsatilla in these cases latterly, with excellent results. I prescribe it in the usual proportion: ℞ Tincture of Pulsatilla, ℥j, Water ℥iv., a teaspoonful every four hours. The Cactus may be used in the same proportion, and with like good results.

Structural Changes of the Œsophagus.—Dysphagia may be the result of annular constriction, ulceration, cancer, and pressure from aneurismal or other tumors. The history and close attention to the symptoms, will alone enable us to distinguish these cases from one another. In these no permanent relief can be obtained, and we have simply to palliate the symptoms as they arise.

ACUTE GASTRITIS.

Acute inflammation of the stomach is of rare occurrence, except as the result of poisoning by the irritant acro-narcotic poisons. Arsenic, Corrosive Sublimate, Oxalic Acid and the mineral acids, are those of this class most frequently used.

SYMPTOMS.—The symptoms of acute gastritis vary greatly. In some cases there is no pain, but a feeling of intense depression, a small, thread-like pulse, cold extremities, and a cold, clammy perspiration. In other cases the pain is most intense, burning, pungent, or lacerating; there are violent retchings aggravating the suffering, the matter vomited varying with the contents of the stomach; the patient has an intense desire for water, but when taken it is seen to bring on

the vomiting. The breathing is shallow and increases the pain, the patient lies on the back, with the feet drawn up, to take off the pressure of the abdominal muscles. The skin becomes hot and dry at an early period, the tongue is red, the epigastrium tumid and tender, the pulse constricted and small, and the bowels costive. As the disease increases, all these symptoms become aggravated, the patient is delirious, or coma comes on, and he shortly dies

Treatment.—When called to a case of poisoning by the irritant poisons, the first object is to remove the agent from the stomach as speedily as possible. Generally, emesis results from the poison, and we have simply to give large quantities of some demulcent to wash the stomach out thoroughly, and at the same time use the proper antidote, if one is known. If vomiting has not occurred, it is much better to use the stomach-pump, and to avail ourselves of all means to quiet the stomach.

The first few hours having passed, we have to turn our attention to the relief of the acute inflammation of the stomach, and in some cases to neutralize the influence of the poison upon the system. Small quantities of ice cold mucilaginous fluid may be administered, and ice given to the patient occasionally; the infusion of Peach Bark as heretofore recommended, will be found useful, as will sometimes the use of Hydrocanic Acid and Morphia, or the Liquor Bismuth; cups should be applied to the epigastrium, and followed with either hot fomentations or cold applications, as best relieves the pain. The bowels should be moved by an enema, sometimes one of a stimulant character having a marked influence in checking the nausea and vomiting.

As the patient is very much prostrated, it would seem that stimulants and food should be taken as soon as the nausea is checked. This must never be allowed, as a small quantity of ingesta will frequently cause a return of the severe symptoms. If there is imminent need of stimulants, ℥ss of Brandy may be used as an injection, and repeated as often as necessary; Beef Tea and Milk may be used in the same manner. In some cases, after the lapse of a day or two, small doses of Turpentine or Creosote have been used with advantage, especially where there was hemorrhage.

CATARRHAL GASTRITIS.

Under this head we may group the very large class of inflammations of the stomach, which, while they can not be termed acute, as regards the intensity of the inflammation, are yet so as regards their duration, if not properly treated.

The causes are various: it may arise from cold, as other inflammations; or from intemperance in eating or drinking—which is a very frequent cause, especially in cities; or from some change in the blood, as in retention of urea, the menstrual discharge, or the introduction of an animal poison from without; and from sympathy with adjacent organs. It also occurs as a complication during other forms of disease, as heretofore described.

SYMPTOMS.—The patient complains of a sense of uneasiness, heat, and pain at the epigastrium, which are greatly increased by taking food, or sometimes fluids; there is nausea, with retching and vomiting, especially after taking any considerable quantity of either food or drink into the stomach; flatulence and distension, with a sense of heat, or acridity and unpleasant sensation in the throat and fauces is common, and acrid or rancid eructations frequently occur. If vomiting occurs, the matter brought off the stomach is generally ropy, colorless and abundant, or colored by bile of a yellowish or greenish hue.

"Chilliness or slight shivering often precedes and attends the pain and vomiting, with a sense of anxiety at the præcordia; and tenderness, fullness and distension of the epigastrium; depression of spirits and of strength, a dark or sallow circle around the eyes, a loaded tongue, the point and edges being red or indented by the teeth, or the surface more generally red, and the papillæ elevated, with great thirst and desire for cold fluids. The bowels are costive, and the urine is scanty, high-colored, and generally presents an acid reaction. The pulse is frequent, soft or broad, open or compressible; the skin dry and feverish; the breathing is frequent and shallow, and the patient either sits up for a time, or lies on his back in bed. All kinds of food, especially animal food, are loathed; or, when tasted, excite nausea and vomiting, which generally also follows warm drinks, especially tea."—(Copland.)

Treatment.—It is well to commence the treatment in this case with an enema to open the bowels. If the patient has been suffering from nausea, I prefer salt water to the amount of one or two pints; if not, then the ordinary cathartic enema; or if there has been intestinal pains, Compound Powder of Jalap ℥ij to Water Oss.

The feet may be thoroughly bathed in hot mustard water, or if the patient is very feeble, the hot bricks may be used in bed as heretofore named. As a general rule, the cold pack will be the best local application over the epigastrium, and should be renewed as often as every fifteen or thirty minutes until it gives relief. In some a hot fomentation will be preferred, and in others counter-irritation, as by means of a chloroform liniment—℞ Chloroform, Aqua Ammonia, Alcohol, aa; apply with a flannel wrung out of hot water.

Put the patient at once upon the use of Aconite, gtts. v. to Water ℥iv: a teaspoonful every half hour. If the Medicinal Hydrocyanic Acid is carried in the pocket case, add gtts x to xx to the sedative solution.

An infusion of the bark of the Peach tree is an excellent remedy to control irritation; I order it taken from the young limbs. In some cases a preparation of Bismuth will be kindly received; a common form is: ℞ Sub Nitrate of Bismuth, ℥j; Mint Water, ℥ij: a teaspoonful every half hour or hour.

At first food is given very sparingly, and in fluid form, and during the entire progress of the disease, and until convalescence is well established, much care will have to be used in regard to the diet. Digestion may be strengthened by the use of some of the milder stomachics, as the Hydrastis, but they require to be used with care.

CHRONIC GASTRITIS.

This is frequently a continuance of the acute disease last described, but many times it results from intemperance in eating or drinking, especially overburdening the stomach, which may be readily done at times, when the system is exhausted, even if there has been no previous tendency to disease.

Symptoms.—In this affection we have the evidences of imperfect digestion and nutrition, in the loss of strength and

flesh, and the languor the patient complains of; continuing, it causes derangement of the bowels, the skin and kidneys; headache is of frequent occurrence, and neuralgic pains not uncommon. The nervous system is deranged, the patient is irritable and fretful, has many imaginary diseases, which to him are a source of great alarm.

The symptoms referable to the stomach are often those of indigestion, a feeling of tension, with heartburn and sometimes nausea after the food is taken. When the stomach is empty, there is a sense of gnawing, of craving, or of sinking, which is extremely unpleasant, and sometimes causes the patient to be taking food frequently through the day, to the great detriment of the disease. Sometimes there are acrid or foul eructations for hours after a meal is taken, which occasionally do not subside until the stomach is relieved by emesis.

DIAGNOSIS.—We diagnose a chronic gastritis by the symptoms of imperfect digestion above named, by the loaded or furred tongue, its tip and edges being red, by the epigastric tenderness, and the severe constitutional disturbance.

PROGNOSIS—If ulceration has not taken place, the prognosis may be considered favorable, except in those cases in which it is the result of intemperance.

POST-MORTEM EXAMINATION.—The lesions of the stomach are not very marked; the mucous membrane is usually of a reddish-brown or dull-grey color, with sometimes livid discolorations; there is usually thickening and induration of the mucous membrane, sometimes extending to the entire coats, and more marked at the pyloric orifices.

TREATMENT.—Time and perseverance are important elements in the treatment of chronic gastritis, the less the hurry, usually, the better the patient will get along. If the stomach is very irritable, and digestion feeble, the blandest articles of food should be selected, and taken in as small quantity as will support the strength; too much importance cannot be attached to this. To relieve the irritation of the stomach, I have used the infusion of Peach bark in doses of a teaspoonful every hour; an infusion of the Cornus Florida, of the Collinsonia, of the Coptis, and agents of like character, with marked advantage

If there are acrid eructations, the Sub-nitrate of Bismuth; if increased secretion of mucus, with nausea, the Oxide of Zinc, in doses of one grain every five or six hours, will be useful.

The irritating plaster should be applied over the epigastrium, and renewed every day, or every other day, until a crop of pustules is produced; it may then be removed, and the part dressed with simple Cerate, until the irritation disappears, when it should be re-applied. In some cases it is well to continue it so as to produce free suppuration, but usually the plan above named will prove the best. This application, it has seemed to me, has accomplished more in this disease than all other remedies combined.

When the irritation has subsided to some extent, the milder bitter tonics, as the Hydrastis, may be employed with great advantage. In some cases, there seems to be a want of innervation to the stomach, and I then use Nux Vomica, as

℞ Extract of Nux Vomica, grs. iv.
Hydrastine, ʒss.
Extract of Leptandra, q. s. M.

Make thirty pills, of which one may be taken three or four times daily.

The liver is deranged in nearly all these cases, most generally torpid, though sometimes too active. In the first case, the administration of Leptandrin in doses of one or two grains two or three times a day, or Podophyllin, thoroughly triturated with white Sugar, in doses of one-tenth to one-eighth of a grain, answers an admirable purpose. For simple constipation I prefer the Phosphate of Soda, in doses of ten to twenty grains three times a day. In those cases in which there is alternate constipation and diarrhœa, the Liquor Bismuth, in doses of a teaspoonful four times a day, answers an excellent purpose. When the tongue is much furred, showing increased mucus secretion, I have used the distilled Extract of Hamamelis with good results. The Collinsonia may also be employed in the same cases, and will sometimes be one of the best stomachics we can use.

Occasionally, we obtain better results in these stubborn cases from the use of the vegetable alteratives. An infusion of Alnus and Rumex, of Cornus and Stillingia, or the Compound Tincture of Corydalis, are among the best of these.

Of the preparations of Iron I prefer the Muriated Tincture in those cases in which the mucous membranes have an in-

creased color, and the neutral salts or the finely divided metallic Iron in other cases. In all of these cases it will be well to bear in mind the evidences of acidity and alkalinity, and select our remedies with reference to this.

If there is marked derangement of the kidneys, it is better to direct the treatment to them, as until free secretion is established, it is impossible to favorably effect the stomach.

If there is feeble digestion, a Pepsin or Lacto-peptin, may be used with advantage. There are many makes of these digestive preparations, and each has its advocates. but the physician will be guided by the recorded testimony. I think the Pepsin is best taken after meals.

ULCERATION OF THE STOMACH.

Ulceration of the stomach may be divided into three varieties; superficial ulceration, follicular ulceration, and chronic or perforating ulcer. The symptoms of ulceration of the stomach are rather obscure, and there are no well defined evidences by which we can distinguish one from another; the distinction, therefore, is post-mortem.

SUPERFICIAL ULCERATION.—According to Habershon, the symptoms are, vomiting, pain at the scrobiculus cordis, pyrosis, loss of strength, or great prostration. The great prostration of strength was a marked symptom, and a most interesting one, taken in connection with the intimate union of the stomach with the large plexuses and gangliæ of the sympathetic nerve. The association of some cases of superficial ulceration with pyæmia, appears to show that a general diseased condition of the blood predisposes or excites this change. Hematemesis sometimes occurs. In those cases following portal congestion, vomiting of coffee-grounds substance took place several days before death. These cases were connected with real anasarca and diseased heart, or with cirrhosis.

Post-Mortem Examination.—The mucous membrane is foul, congested, especially the rugæ, and changed in color. The ulcers vary in number, usually about one-fourth of an inch in diameter, with rounded, irregular edges, and extending through the mucous membrane: they are more numerous near the pyloric orifice, sometimes seeming to have destroyed nearly the entire mucous membrane.

FOLLICULAR ULCERATION.—The symptoms of follicular ulceration of the stomach are very similar to those of chronic gastritis. It is generally met with in children, when it is usually attended with diarrhœa, being one of the forms of cholera infantum. It is especially recognized by the great irritability and restlessness of the child, the dry mouth, furred tongue, red at tip and edges, tenderness on pressure over the epigastrium, pinched appearance of the countenance, and excessive and persistent irritability of the stomach. Occasionally hemorrhage occurs, and we have the vomiting of coffee-ground looking matter.

Post-Mortem Examination, shows a condition of chronic inflammation, the mucous membrane thickened and discolored, with very many minute points of ulceration seeming to be situated in the gastric follicles.

CHRONIC AND PERFORATING ULCER.—Chronic ulceration is the result of long continued inflammation, so that it is preceded (unless occasioned by injury when it may be acute) by the symptoms heretofore named. Sometimes no other symptoms present themselves, but usually the pain is more severe, at times intense. Vomiting of food is the most marked evidence of chronic ulceration, if we except hemorrhage; the period at which it occurs is variable, sometimes the food is at once rejected, but usually from one to four hours elapse; at times a meal is completely digested, the vomiting occurring afterwards, or stopping with slight nausea and retching. Hemorrhage, though tending to confirm the existence of ulceration, is not pathognomonic as some would suppose, as it may occur from congestion, determination of blood and malignant disease.

Chronic Ulceration, though a severe disease, is not necessarily or speedily fatal; in many cases the patient may be around, in others the disease will continue for years. It terminates fatally: 1st, from gradual exhaustion; 2d, from hemorrhage; and 3d, from perforation of the peritoneal cavity.

Perforating Ulcer presents the symptoms already named up to the period of perforation. When this occurs the pain in the epigastrium becomes excruciating, which in turn extends to the entire abdomen; in some cases there is nausea and vomiting, but in others these symptoms are absent; there is great prostration, a livid and contracted countenance, cold-

ness of extremities, and a feeble pulse; occasionally there is severe hemorrhage. The disease may terminate fatally in a short time, or it may continue for several days, or even two or three weeks, or, in rare cases, the patient may recover.

Post-Mortem Examination. — In chronic ulceration, the ulcers are found principally near the pyloric orifice, they vary in size from half an inch to three inches, are usually round, with elevated and well defined edges. There is tumefaction of the mucous membrane, and thickening of the sub-mucous cellular tissue. If perforation has occurred, the opening through the mucous membrane is largest, and that through the peritoneum is smallest. In some cases efforts towards a cure are observed, the stomach becomes attached to adjacent viscera by adhesion, and inflammation and partial cicatrization of the ulcer takes place. In cases of non-perforating ulcer, the form of the stomach is sometimes changed, from the contraction of plastic material thrown out for the repair of the part.

TREATMENT.—In many respects the treatment will be similar to that named in chronic gastritis. The character of the disease should be carefully explained to the patient, and the necessity for strict care in regard to diet pointed out; as well as the importance of leading a very temperate and regular life. In many cases a cure will depend more upon these points than upon the remedies used.

Counter-irritation by means of the "Irritating Plaster" has proven of great service. When the stomach is irritable, without much secretion, it is used to the extent of producing a slight crop of pustules, then removing until the irritation has passed away, when it is re-applied. But when there is free secretion of mucus, or in some cases of muco-pus, it is sometimes well to carry it to suppuration, and continue the discharge as long as it can be borne.

In these days of pleasant medication many persons object to such an application as the irritating plaster, and we are forced to employ other means. Hence for the last few years I have used the acid bandage in its stead. Usually I direct a flannel bandage, wrung out of good cider vinegar; but in the more stubborn cases we employ water acidulated with Muriatic Acid.

When the bandage is removed in the morning, the abdomen is thoroughly sponged with cold water, and dried with some friction.

When the stomach is irritable, without much secretion, I like the action of an infusion of Peach Bark, with small doses of Aconite. This is continued for one or two weeks, until the irritation has passed away, so that the simple stomachic bitters may be given. It is never best to be in a hurry in these cases, as time is an important element in the treatment.

Where there is increased secretion, we may employ the Liquor Bismuth, the Sub-nitrate or Carbonate of Bismuth, or the Oxide of Zinc in the usual doses. These may be associated with small doses of Hamamelis, or Collinsonia, or in some cases Alnus and Rumex.

As the patient improves, he may be put upon the use of the milder bitters, as the Hydrastis, associated with Iron and the Hypophosphites. In some of these cases the Nux Vomica will be found an excellent remedy. When atony of the stomach is marked, and associated with deficient digestive power, we often find benefit from the use of minute doses of Podophyllin thoroughly triturated. I would not advise more than the one-twentieth to the one-tenth of a grain three times a day. Sometimes the addition of a small portion of Lobelia or Ipecacuanha is an improvement.

It is well, in all these cases, to obtain regularity of the bowels by hygienic means, rather than by cathartic or laxative medicines. In the first class of cases, we employ the Phosphate of Soda, grs. xx, in a glass of water on going to bed; salt-water friction to the bowels being used in the morning. In the second, one or two drops of Tincture of Nux Vomica in a glass of water is taken on rising in the morning. The bowels are thoroughly rubbed and kneaded, and the person must have a regular time to go to stool after breakfast.

Illustrative of the treatment, I may quote from Dr. Bennett: "The remedies I have found most efficacious, in simple chronic ulcer of the stomach, are quietude, careful regulation of the diet, Bismuth and Opium Pills and Powders, and sometimes warmth, at others cold, applied locally. It may be frequently observed that the mere coming into a hospital, and remaining quietly in bed, has a favorable effect in modifying the distressing symptoms. I have also remarked that those

patients who are always getting up and walking about, suffer much more than those who remain in bed, especially at the commencement of the disease; hence, repose in an easy position is to be enjoined. The diet should consist of farinaceous substances, occasionally mixed with beef tea, or milk, given in small quantities, frequently repeated. If the stomach will not tolerate the food warm, it should be given cold. When, despite this treatment, vomiting continues, it is best to suspend all nourishment for a day or two, and give nutritive enemata. As the patient gets better, the amount of solid food should be very cautiously increased. The thirst is a distressing symptom in such cases, and is best allayed by allowing ice to dissolve in the mouth slowly, or sipping at intervals, milk and lime water mingled in equal proportions. The pain is alleviated best by Bismuth and Opium, combined in the form of pills or powder. Sometimes local warmth, but more frequently pounded ice, mixed with salt in a bladder, applied over the part, will give relief. Two or three leeches, or a counter-irritant, may succeed, when every thing else fails, and should be tried. Quietude and suspending all ingesta for a time, I believe to be the best remedies for hemorrhage, and when exhaustion from want of food exists, nutrient enemata, with wine, must be administered. When a perforation occurs, I have already pointed out the great importance of avoiding the giving of stimuli by the mouth, and have stated the practice which should be perseveringly followed, namely, the administering Opium in the form of pill, quietude, avoidance of purgatives, and nourishing at first by enemata, and then cautiously by non-irritating substances, given in small quantity by the mouth."

STRICTURE OF THE PYLORUS.

Stricture of the pylorus is usually the result of hypertrophy of all the tissues at this point, but rarely it may be found when these are normal. The source of this difficulty is obscure, but we have reason to believe that it is the result of long continued irritation, or chronic inflammation, the symptoms of which have preceded it. The symptoms are common to this, to cancer, and some cases of ulceration. There is dyspepsia, with pain in the epigastrium, and vomiting after eating. Of course

the long continuance of imperfect action of the stomach, will give rise to marked debility, and to functional derangement of the organs; occasionally the enlarged pyloric extremity can be plainly felt through the abdominal walls, when, if there are no evidences of a cancerous cachexia, we may conclude that we have stricture with hypertrophy.

As regards the treatment, we can do nothing but palliate the symptoms as they rise. The relief of irritation may check the progress of the disease, and this may be sometimes afforded by the means heretofore named. The food should be principally liquid, and easily digested, and taken in small quantities at a time. Harsh treatment, or the administration of tonics and stimulants should be studiously avoided, and in this way the patient's life may be prolonged for a considerable time.

CANCER OF THE STOMACH.

The stomach is one of the organs most frequenly affected with cancer, every form of the disease being observed, but schirrus and medullary are most frequent.

The disease is most frequently found at the pyloric extremity, and originates in the mucous membrane. In its progress it invades all the tissues, and finally they are resolved into a cancerous mass. The disease extends in the course of time, affecting the adjacent glands, the pancreas, duodenum, in fact all parts contiguous.

SYMPTOMS.—The symptoms of cancer, in the early stage, are very obscure, being those heretofore named, common to the diseases interfering with the functions of the organ. There may, or may not be pain; when it exists, it may be sharp and lancinating, or dull, twisting and heavy; sometimes it is most severe after taking food, but at others when the stomach is empty. When the disease has obtained considerable development, vomiting is generally the most prominent symptom, coming on a short time or several hours after eating. The material thrown off the stomach is usually frothy and fermenting, and contains the *sarcina ventriculi*. In its later stages, the cancerous mass can generally be tolerably well defined, the health is very much shattered, and the patient presents that peculiar dull-yellowish appearance, denoting a

cancerous cachexia. The pain is now very intense, and constantly requires means to alleviate it; digestion is very imperfect, vomiting coming on immediately when the stomach is distended to any considerable extent, and almost always before digestion is accomplished. Thus the patient is gradually worn down by physical suffering, and the want of nourishment.

DIAGNOSIS.—As before remarked, it is difficult to distinguish between these diseases of the stomach, yet with care a very accurate diagnosis may be formed. We would diagnose cancer from inflammation, by the fact that the latter extends over a long period of time, while cancer develops itself in from three to twelve months, and runs its course in from one to three years; vomiting of blood occurs in ulceration, but rarely in cancer until the last; ulceration is frequently amenable to treatment, cancer is not; then there is the additional evidence of the enlargement of the epigastrium, and cancerous cachexia. The last would be the only point by which we could determine between the malignant and non-malignant enlargement of the pylorus.

TREATMENT.—As we can not expect to cure the disease, the treatment will be such as will palliate the symptoms, and if possible, retard the growth of the cancer. The measures named under the head of ulcer of the stomach, will be appropriate, especially those quieting irritation. Ext. Conium, with an infusion of Peach Bark, has seemed to answer a better purpose in two cases that I have treated, than any other remedies. The Sub-nitrate of Bismuth with Opium; the Oxide of Zinc; Tincture of Perchloride of Iron one part, to Glycerine two parts, with the addition of Morphia, is advantageous. When not irritating, a solution of Tannin may be used freely, relieving many of the most unpleasant symptoms, and arresting to some extent the growth. The disease will have to be treated much on general principles, meeting the indications as they arise, though, at last, it resolves itself simply into the administration of Opium or Morphia.

DYSPEPSIA.

Under this head we may group the entire class of functional disorders of the stomach, which are primary in their origin, and not dependent upon structural change.

Difficult or imperfect digestion, is one of the most frequent ailments we meet with in practice, and requires more discrimination for its successful treatment. This will be more apparent if we notice those conditions that are necessary to healthy digestion; they are: 1st, A proper quantity and quality of ingesta; 2d, Thorough mastication and insalivation; 3d, Normal action of the muscular coat of the stomach, giving the food proper motion; 4th, A proper quantity and quality of the gastric juice, and of the pancreatic and biliary fluids: 5th. Normal innervation, and healthy condition of the blood; and, 6th, A reciprocal action of the intestinal canal. Dyspepsia may be the result of a failure of any of these conditions, or a partial failure of two or more of them, so that very different causes may give rise to a similar result.

Habershon classifies the causes of dyspepsia, as: "1st, From abnormal condition of the mucous membrane and its secretion; 2d, From the muscular movements being impeded; 3d, From the state of the vascular supply; 4th, From the condition of the nervous system; and lastly, From the character and changes that take place in the food. Several of these causes of dyspepsia may be combined; some lead to disease of a very transient form, others are irremediable."

The mucous membrane may be affected in various ways: Thus, we may have atrophy, especially of the follicles, the change at last becoming so great that digestion can not be accomplished, and the patient necessarily dying of marasmus.

Again we find other cases in which there is undue activity of the mucous glands, and of course deficient action of the gastric follicles, hence we have two conditions, either of which, if considerable, would materially interfere with digestion. This condition is frequently observed associated with chronic disease, as in anæmia, chlorosis, chronic bronchitis, and other chronic affections of the mucous membranes. As an independent affection, the symptoms are a feeling of weight and tension in the epigastric region: a bad taste in

the mouth; fœtid breath; occasional nausea; sometimes vomiting, when considerable quantities of vitiated mucus may be raised; a heavily loaded tongue, especially at the base and in the early part of the day; sometimes there is a disgust for food, and for several hours after it is taken, there are unpleasant eructations; at others the appetite is craving, but the patient feels uncomfortable after eating. The bowels are usually constipated, but there are occasional attacks of diarrhœa, in consequence of imperfect digestion of the food.

The reverse of this condition may exist: there is scanty mucous secretion, with normal or slight excess of gastric juice, the result being a continued irritation of the stomach, from want of its natural protection. In these cases we have heartburn, both after eating and when the stomach is empty. There is a feeling of soreness and rawness when distended with food, and a disagreeable gnawing and feeling of contraction when it is empty. Digestion is not impaired to such an extent as is found in some other cases, yet the symptoms are exceedingly unpleasant.

The gastric juice may be increased in quantity or deficient, or may be changed in quality, being too active, or not active enough. In the first instance, though normal in quality, the excess impairs digestion, and by its acrid properties irritates the stomach and causes pain and unpleasant sensations. It is this excess that gives rise to pyrosis, or water-brash. It may be excessive simply by too great dilution. The excess may be at the period of digestion, or in the interval when the stomach is empty; in the first case, there are acid eructations with more or less of the partially digested food, the last is attended by severe heartburn.

If deficient, the causes of imperfect digestion would seem to be evident; but this is not the case, for the deficiency may be only in one element, as of an acid, or of water, or of pepsin, or it may be deficient on account of the intense acridity of the secretion irritating the stomach and checking its formation. In these cases the symptoms are varied, but there is evidence of imperfect digestion, and more or less unpleasant sensations at the epigastrium.

The secretion may be irregular, giving rise to a craving, with pain at the stomach, cramp, heartburn, etc., in the intervals between meals, and sometimes nausea and vomiting,

or a burning sensation, and unpleasant eructations, two or three hours after eating. This irregular secretion, if it continues, causes great irritation, sometimes disorganization of the mucous membrane, and may cause its digestion if its innervation is enfeebled by injury or severe shock to the system. Impaired action of the muscular coat will, undoubtedly, derange the process of digestion, as it depends to a considerable extent upon the continued movement and attrition of the food. The general symptoms are those common to the other forms of dyspepsia, but there is an absence of pain, and in consequence gaseous accumulations and uneasiness from distension.

The general sluggishness of the system, especially the torpor of the nervous system, and slow action of other organs, with obstinate constipation of the bowels, are additional indications. The reverse of this is productive of fully as serious consequences, as the food is forced through the pyloric orifice before stomachic digestion is complete. The result is diarrhœa, with imperfect nutrition, great loss of strength and flesh, and if it continues, death from exhaustion.

Changes in the circulating fluid may give rise to dyspepsia, but they more frequently intensify it by preventing normal nutrition of the stomach. All have observed the intimate relation existing between the blood and the stomach in acute diseases, hence in fever, though the appetite may demand food, yet digestion is slow and imperfect; though usually the appetite disappears with the power to digest. In many diseases in which the blood is loaded with impurities, we find that all means directed to the stomach are inefficient; we must first remove the detritus from the blood, and having secured a normal circulating fluid, though small in quantity, digestion can be again established. Torpidity of the bowels, and inactivity of the skin, doubtless affect the stomach in this way, in addition to the extension of the derangement by continuity of structure and sympathy.

The most common of these causes of dyspepsia, and one that should be carefully watched for in all these cases, is derangement of the urinary secretion. I have seen cases in which all other means having been exhausted, a treatment directed to restore this secretion, has radically cured the dyspepsia. That this is the fact, is proven conclusively, when we

observe that in every derangement of the kidneys of any considerable duration, the function of the stomach is one of the first impaired.

Like all other functions, perfect digestion depends upon normal innervation; and in this case it is dependent upon the normal condition of three parts of the nervous system. The great sympathetic nerve seems to be the governing power in a state of health; the pneumo-gastric nerve is distributed to it to connect it with the heart, lungs and brain, and it is connected with the spinal cord by communicating filaments to the sympathetic gangliæ. Disease of any of these sources of innervation may give rise to dyspepsia, and conversely, disease of the stomach may give rise to derangement of these different parts of the nervous system.

Derangement of innervation manifests itself in two principal forms, irritation and atony. The first, as we have already noted, may arise in and be confined to the stomach, or it may be the result of distant lesions. In the first place, we have irritation of peripheral nerves, with determination of blood, derangement of secretion, and other results that follow. In the last, we have the same effects but the cause is distant, as in irritation of the stomach from disease of the brain and spinal cord. The severest cases of irritation we ever witness, are from this cause, as in some cases of cholera infantum. We again see cases in which the irritability of the stomach depends upon disease of the spinal cord; and cases in which we are convinced that the lesion is one of the sympathetic nervous system, though we are unable to prove it.

Derangement of the stomach reacts on the nervous system, and organs supplied by the same system of nerves. Thus, we have hypochondriasis, hysteria, irritation of the spinal cord, cough, expectoration, and seeming disease of the lungs, palpitation and other disordered action of the heart as its result.

The character of the ingesta is very important as an element of dyspepsia. Food may be taken in too large quantity, or the quality may be such as to overburden the stomach; hence its continuance gives rise to imperfect digestive power. Abnormal changes taking place in the food may not properly be considered a cause of dyspepsia but rather a result, and yet serve to perpetuate it. These may be divided into putrefactive decomposition and the formation of sulphuretted hydrogen;

simple fermentation giving rise to carbonic acid; fermentation forming lactic or butyric acids, and the formation of sarcenia ventriculi.

Symptoms.—The principal symptoms have been named as we considered each lesion, but we may reconsider them with advantage. Dyspepsia, as we before remarked, is imperfect digestion, and from this we have feeble and imperfect nutrition, and the results that flow from it, derangement to a greater or less extent of all the functions of the body, and loss of flesh and strength. Unpleasant sensations in the region of the stomach are always present in some degree, but vary as regards its condition; pain, burning, sense of soreness, tension, fullness, weight, tenderness on pressure, are the principal ones, and for the diagnostic bearing of them I would refer to the preceding description.

Prognosis.—The prognosis may be favorable in a large majority of cases, if the patient's appetite can be controlled for a sufficient length of time; if not, medicine will but palliate the disease, or remove it for a time. In some cases a cure is impossible, relief of the most unpleasant symptoms being all that can be expected.

Treatment.—In the first case named treatment will be of little avail, as the structure having become atrophied will not respond to the action of medicines; relief may be obtained by the administration of the gentle bitter tonics, and stimulation by Nux Vomica or Strychnia. Digestion may be greatly aided by the administration of Pepsin after meals. The different manufactures of Pepsin may be employed, care being taken to select that which is free from a disagreeable odor of putrescence. Lacto-peptin is good, and pancreatin sometimes gives additional efficacy. Ten grains of Pepsin to a half glass of water may be taken in teaspoonful doses.

When the symptoms indicate excessive secretion of mucus, or where there is fermenting or decomposing food in the stomach, a thorough emetic once, twice, or three times a week, with the subsequent use of bitter tonics, will readily effect a cure. An emetic may be used occasionally in cases of torpor of the stomach, and usually gives marked relief and facilitates the action of other medicines. There are also some cases of

irritation, the system being sluggish, in which it may be resorted to.

In cases of atony of the stomach, whether accompanied by increased secretion of mucus or not, the extract of Nux Vomica or Strychnia is used with the greatest advantage; the first may be used in doses of one-eighth of a grain; the last in doses of one-sixtieth to one-twentieth of a grain. I frequently associate the Nux Vomica with Hydrastine in the form of a pill, adding a small portion of Podophyllin, which increases its efficacy. The Strychnia is best given in solution, which is rendered more pleasant by the addition of a few drops of Muriatic Acid. As a common tonic I have found none better than,

℞ Hydrastis, ℥ss,
Tincture of Xanthoxylum, ℥j.
Water, Oi. M.

Give in tablespoonful doses three times a day; unless it be the Compound Tonic Mixture, which is a better stimulant and peptic. When the secretion of mucus is excessive, the Oxide of Zinc in grain doses may be employed, and rarely the Oxide or Nitrate of Silver. If in these cases there is fetor of the breath, with tenderness of the mouth and gums, the Chlorate of Potash may be used with advantage. The administration of laxative doses of Podophyllin and Leptandria, guarded by extract of Hyoscyamus or Extract of Cannabis, is very necessary, as is also the daily use of the alkaline bath with brisk friction. Dr. Hanfield Jones recommended Lactic Acid in irritative dyspepsia, as an aid to digestion. It should be employed in doses of fifteen to twenty drops in a tablespoonful of water, and taken during the meal. If it is not readily procured, *whey* may be employed as a drink in its stead.

The next class of cases are difficult of diagnosis and hard to cure, but we may with care determine with considerable accuracy their condition. The restoration of all the secretions is of great importance, hence we employ the bath with friction thoroughly, and restore a normal action of the bowels by laxatives held in suspension with Mucilage or Oil. I have used the Podophyllin triturated thoroughly in Salad Oil, and with Ulmus or Gum Arabic, or it may be formed into a pill with Aloes, coated with Gelatin, and sugar-coated if desired. Small doses of Tincture of Aconite and Belladonna will be found useful in some cases, as will also the Gelseminum.

Pyrosis is controlled by the use of Sub-nitrate of Bismuth with bitter tonics, and the employment of counter-irritation. Some of the vegetable alteratives have a marked action in the confirmed cases, as the Alnus, Scrophularia, Trillium and Ptelea. I have used a pill of

℞ Extract of Nux Vomica, grs. iij.
Extract of Ptelea, ʒss.
Hydrastine, grs. xv. M.

Make thirty pills, and give one three or four times a day. Increased acridity depends upon irritation of the stomach, which is best relieved by the use of the irritating plaster and the administration of an infusion of Peach bark. Occasionally we find that imperfect digestion is caused by the taking of fluids too freely during and after a meal, the gastric juice being too greatly diluted. In such case, all fluids at this time should be proscribed and food taken in a solid form as much as possible. Acidity of the stomach and heartburn are sometimes relieved by the use of vegetable acids.

If the gastric juice is deficient, we may increase it by strict attention to the general health, a restricted diet, and the use of bitter tonics and gentle stimulants. It may be deficient, on account of a want of the necessary fluid, and in such case, a glass of cold water taken one or two hours after eating will give relief. The employment of a small portion of Muriatic Acid, largely diluted, is sometimes attended with advantage. Irregularity of the secretion is remedied by the use of bitter tonics and the means named to relieve irritation.

Impaired action of the muscular coat demands the use of bitter tonics and Iron, with the Nux Vomica or Strychnia. If connected with constipation, as is frequently the case, we associate small portions of Podophyllin with it. Too great activity should be treated with narcotics and sedatives, and the use of Dioscorea and sometimes Bismuth.

When there is evident lesion of the blood it is necessary to promote secretion from all the excretory outlets. For this purpose a careful selection of vegetable alteratives, possessing tonic and stimulant properties, will be better than any other remedies. The Compound Tincture of Corydalis with an alkaline diuretic, as the Acetate or Citrate of Potash, will be found effective. Failure of the kidneys to properly eliminate nitrogenized material from the blood may be treated in the manner hereafter named when speaking of the diseases of those organs.

As regards the derangement of innervation we use excitants if defective, and sedatives, narcotics and counter-irritants, if excessive. If there is irritation of the dorsal spinal cord, marked benefit results from the continued use of a counter-irritant to the part. In other respects we would treat it on the principles already laid down.

In cases in which there is tendency to putrefactive decomposition, or unnatural fermentation, it is very necessary that the patient restrict himself to scant diet, and one easily digested; if this is not done, it will be impossible to restore natural tone to the stomach. To correct this for the time being, the Hyposulphite of Soda, Charcoal and Creosote have been recommended; the first as especially applicable in sarcina.

INTESTINAL DYSPEPSIA.

It is now very clearly established that stomachic digestion, though important, is but a part of the digestive act, and that the small intestines, with associate glands, do more to prepare the food for admission into the blood than the stomach. This has been surmised by many of our best physiologists, and is clearly proven by a case coming under the care of Dr. Busch, of the University of Bonn.

In this, a woman received such injuries as to produce a double fistula—the upper near the pylorus discharging the contents of the stomach—the lower opening into the small intestine; there was no connection between them. Though her appetite was good, and stomachic digestion well performed, she failed in flesh until her weight was reduced from 140 to 64 pounds. As soon as a communication was established between the two fistulas, so as to introduce the material discharged from the stomach into the intestine, she commenced to improve. But as this artificial connection was difficult to maintain, and was a source of irritation, Prof. Busch finally directed that the food should be introduced into the intestine through the lower fistula, without passing through the stomach, and it was found to digest well, and the improvement in flesh and strength continued as though it had been taken by mouth.

This subject will be found considered at some length in my Principles of Medicine, page 61, to which the reader is

referred. I give the facts here, to show the necessity of studying the lesions of digestion in the small intestines as well as in the stomach.

CAUSES.—There are several causes that may give rise to intestinal dyspepsia. Among them, the use or the abuse of cathartic medicine is doubtless the most common. Muco-enteritis from cold may lead to it, as may the continued use of irritant or indigestible articles of food. It is produced in some cases of gastric dyspepsia, by the decomposition of the food, the products being of an irritant character.

SYMPTOMS.—We will occasionally meet with cases in which there are evident lesions of digestion, and yet the stomach is in a healthy condition, and performs its functions well. In some of these there will be no uneasiness to point out the location of the disease, except the tendency to constipation. The patient, however, is not well nourished, though sufficient food may be taken, and there is marked loss of strength and energy.

In others, the patient suffers more or less uneasiness in the abdomen two or three hours after eating, and the bowels are very irregular in their action. When this intestinal irritation is marked, the fæces are semi-fluid and irritant, and the countenance presents a peculiar pinched appearance.

In other cases the intestinal dyspepsia is associated with the gastric lesion, and presents the symptoms heretofore named.

The most common condition is that in which there is atony with increased mucous secretion. As has been noticed, we find such increased secretion of mucus in all cases, associated with impairment of functional activity.

Irritation of the small intestines, and impaired digestion from this cause, are of less frequent occurrence, though the symptoms that attend it are more marked. The patient complains of uneasiness about the umbilicus, the stools are semi-fluid and acrid, and there is an unnatural irritation of the nervous system. We find the pulse increased in frequency, the skin dry and harsh, the urine scanty, and the body poorly nourished.

DIAGNOSIS.—We obtain the evidence of impaired digestion from the loss of flesh and strength, showing failure of the

nutritive functions. There are no evidences of such disease as would cause a deterioration of the blood, if sufficient nutritive material was furnished it; or of a want of power in the tissues to reproduce themselves.

If with this there are no gastric symptoms, we will conclude that the lesion is wholly intestinal. Or if the gastric lesion is not sufficient to account for the effect, we may then surmise an intestinal lesion. In addition, we have in the one class of cases an obstinate constipation showing atony; and in the other class we have uneasy or painful sensations, showing irritation.

PROGNOSIS.—Some cases of intestinal dyspepsia prove very stubborn, and yield slowly to treatment. This is especially the case when the natural irritability and function have been exhausted by cathartics, or when an irritable condition has been established by the same means.

In the slighter forms of the disease, it is readily controlled by medicine. It may be said that there is scarcely a case of gastric dyspepsia in which the small intestine is not at fault, and remedies should always be directed to this condition.

TREATMENT.—For the purposes of treatment we may divide these cases into two classes, and the symptoms will usually be sufficiently distinct to make the diagnosis. In the first there is irritation of the mucous membrane, and of the nervous system governing the digestive act. In the second there is atony, usually with increased mucous secretion.

In the first case I like the action of small doses of Aconite associated with an infusion of Peach Bark, Epilobium or Dioscorea. When there is much irritation of the nervous system, Gelseminum may be added. In some cases, when there is a feeble circulation, the Aconite with Belladonna will act better. The Phosphate of Soda in doses of five grains, three times a day, tends to relieve irritation, and acts as a restorative.

In these cases the Irritating Plaster applied above or over the umbilicus has served an excellent purpose. It is not necessary to use it to free suppuration, but a single application is allowed to remain until a sense of heat and irritation is produced, when it is removed to be reapplied when this passes away. In place of this, we sometimes use the acid bandage as heretofore named, and with very good results.

After a week or two of this treatment, the patient improving, I would add the Liquor Bismuth, in doses of a teaspoonful, three times a day. Following this, some of the simpler tonics in infusion, slightly acidulated with Nitric Acid. An infusion of Hydrastis or of Ptelea, prepared in this way, will be found to answer an excellent purpose. In some cases, I have associated the medicinal Hydrocyanic Acid with Tincture of Nux Vomica in small doses, with excellent results.

In the second class of cases we will find that means to overcome the constipation will be sufficient in the milder cases. As a general rule, it may be assumed that so long as the bowels fail to act regularly, a dyspepsia can not be cured; hence means to relieve this complication are of importance in every case.

The means I employ are very simple. The patient is instructed to drop one or two drops of Tincture of Nux Vomica in a glass of water, and drink it on rising in the morning. The bowels are to be thoroughly rubbed with the hand, using salt water, or if the surface is tender some fatty matter. Immediately after breakfast, let the patient go to stool, and solicit an action without straining. This course must be persisted in for months, and it will rarely, if ever fail. But no one can afford to neglect the regular habit of going to stool, at any time, without a recurrence of the constipation.

When the fæces are hardened and expelled with difficulty, I have generally ordered the Phosphate of Soda in the evening with a glass of water.

When the digestive function of the small intestine is enfeebled, I have usually employed small doses of Podophyllin in trituration of one to one-hundred parts of Sugar of Milk, or loaf sugar; or the fluid extract associated with the Nux Vomica. I never desire cathartic action, indeed I prefer that it does not influence defecation at all. Of the trituration as named, five to ten grains may be given twice a day; of the fluid extract one to two drops. An infusion of one part Podophyllin with five parts of Hydrastis, and acidulated with Muriatric Acid answers an excellent purpose, probably better than the use of Podophyllin. In place of the Hydrastis we may sometims substitute Ptelea, Hamamelis, or Alnus. Occasionally we find cases in which small doses of a sedative, combined with the bitter tonics, add much to their efficiency.

The general treatment will be the same as for other chronic disease. It is essential that the skin be stimulated to normal activity, and occasionally that secretion from the kidneys be increased. Usually the use of baths or friction is sufficient for the first, and we may so select our tonics as to accomplish the second—Collinsonia, Achillea, Hydrangea, etc. Many times we will obtain benefit from rubefacient frictions over the abdomen, but rarely from counter-irritation.

ACUTE HEPATITIS.

Inflammation of the liver is a disease of rare occurrence, more so, possibly, than of any part of the digestive apparatus. It is either acute or phlegmonous, with tendency to terminate in suppuration; or sub-acute, giving rise to functional derangement, and if continued, to effusion of plastic lymph and cirrhosis, or to a condition of chronic enlargement. The causes of hepatitis are those that would give rise to an inflammation of any other portion of the body.

SYMPTOMS.—Acute inflammation usually affects but a small portion of the organ, and the local symptoms will depend somewhat upon its location. The disease usually commences with a well-marked chill or rigor, attended by nausea and vomiting, frequently of biliary matter. At this time there is a feeling of tension and oppression in the hypochondria, especially the right, and in the epigastrium; and frequently with the vomiting there is a desire to go to stool, without the power. Marked febrile reaction follows the chill, a hot dry skin, hard and frequent pulse, tongue coated a dirty yellow, patient dull and torpid, and complaining of an intense aching across the temples, bowels constipated, urine scanty and sometimes discolored with bile pigment.

The fever is always remittent, though sometimes the remissions are not well marked; they occur usually in the morning. These symptoms continuing, we find but little change, only that the patient grows more feeble, the fever assuming a typhoid type, with a dark tongue, unless from the situation of the inflammation other parts become involved. Thus, if the portion next to the diaphragm is involved, an irritation of the lung is produced, and a more or less severe cough with dyspnœa

and expectoration is produced. If of the part contiguous to the colon, a dysentery may be excited that greatly increases the patient's suffering.

The inflammation terminates in resolution, in structural change induced by effusion of coagulable lymph, or in suppuration. The first usually occurs in from seven to nine days; suppuration may occur as early, or may be postponed for two, three, or four weeks. The symptoms of suppuration are increased prostration, the occurrence of rigors, with hectic fever and night sweats, and a dull, throbbing, tensive pain. These symptoms may continue many days before the pus comes to the surface, or is discharged through the other organs. When pus is formed it will point to that part where there is least resistance: thus, if situated on the right side, it will open through the abdominal wall; if at the superior surface, it will perforate the diaphragm, and be discharged through the bronchi; if of the lower surface, it will probably discharge into the transverse colon. If there remains anything like normal vitality, adhesive inflammation is set up at that part where pressure of pus is greatest, coagulable lymph is thrown out, and the parts are agglutinated together; if it were not for this, the pus would be discharged into the peritoneal cavity.

In sub-acute inflammation of the liver, the disease appears in a similar manner: first, a chill, then febrile reaction, disturbance of the stomach, and arrest of secretion. The patient complains of weight and tension in the right hypochondrium, and a feeling of soreness and deep aching pain; occasionally there is marked pain in the side, coming on in stitches, and some pain and aching in the shoulder, the dorsal spine, and neck. Occasionally the patient becomes *jaundiced*, when the symptoms become very much aggravated, sometimes assuming a low typhoid type.

Diagnosis.—We diagnose a hepatitis by the febrile action and location of pain, and by the marked derangement of the digestive apparatus.

Prognosis.—The prognosis is favorable in all except the very acute cases, in which there is danger of suppuration. Even in this case the prognosis is not so very unfavorable, as many cases recover, though the duration of the disease is long, and it may entail subsequent suffering.

POST-MORTEM EXAMINATION.—The liver is usually found enlarged, and occupying much more space under the ribs, the diaphragm being carried up. It contains a greater amount of blood, and is redder in color, or mottled. Lymph may be deposited in various parts, and more or less organized. Sometimes softening results, and we find the liver friable and easily torn, and its capsule easily separated. If there has been suppuration, we have the evidence of it in the presence of an abscess, or in the presence of small, purulent collections distributed through its texture—interstitial suppuration.

TREATMENT.—The treatment of hepatitis will not vary materially from that proper for other inflammations. The first object is to place the stomach in such condition that remedies may be kindly received and appropriated. If there is nausea and vomiting, there is little use to temporize with it; a thorough emetic will relieve this, and also modify the fever. Whether this is given or not, the patient should be put upon the use of special sedatives, with a diaphoretic, as:

℞ Tincture of Aconite or Veratrum, gtt. x.
Tincture of Chionanthus, gtt. xx.
Water, ʒiv. M.

of which a teaspoonful may be taken every hour. A mild saline cathartic is frequently of advantage. If nausea continues after the use of the emetic, or if an emetic is not deemed desirable, an infusion of the Compound Powder of Rhubarb and Potash, or Peach Bark, may be used, or the Sub-nitrate of Bismuth and Morphia.

If the inflammation is acute, or in either case, the application of cups, with or without scarifying, gives speedy relief from pain. These should be followed by hot fomentations of Hops, Stramonium, etc., or in some cases, where heat increases the suffering, by cold water bandages.

Small doses of Leptandrin, with diaphoretic powder, may be continued throughout the treatment, as tending to relieve the congested condition of the viscus, and at the same time being unirritating. The fever being controlled within the first day or two by the sedatives, and the remission lengthened, as it will be, Quinia should be administered pretty freely (from ten to fifteen grains during the remission), with the effect of materially modifying the fever and inflammation. This treatment judiciously pursued, will effect resolution, in a large

majority of cases, in from seven to nine days, and sometimes much sooner.

CHRONIC HEPATITIS.

Chronic inflammation of the liver was a very frequent complaint some years since, if we are to believe the history given us, and we have no reason to doubt it, as the continued administration of Mercury, for every disease, unduly stimulating this organ, might well produce this result. Since Mercury has gone out of date, we see but few cases, and these among persons above middle age, and who have been mercurialized according to the old formula. I do not deny that the disease may arise from other causes, like other chronic inflammations, but they are the fewest cases.

Symptoms.—The symptoms met with in this disease are in part owing to the affection of the liver, and in part owing to sympathetic derangement of other organs. As illustrating the disease as described a score of years since, I will quote from Copland: "As chronic disease of the substance of the liver may present every grade, down from the acute state to the slightest deviation from the healthy function, so the symptoms attending it must vary, and assume more or less precise characters. In the *slighter* or *more obscure* forms, the nature of the disease is seldom evinced by distinct phenomena: various dyspeptic symptoms, flatulency, acid or acrid eructation; sometimes nausea, and less frequently vomiting; loss of flesh; muddy or sallow complexion; dry cough or embarrassed respiration; torpid state of the bowels; aching or pain in the back, or in the right hypocondrium, or a sense of weight and tenderness in the region of the liver; an irregular state of the bowels, or dark-colored, offensive, slimy, greenish, or watery, or muddy evacuations: dark or saffron color of the urine; slight acceleration of the pulse in the evening; increased heat and restlessness in the night; heat of the palms of the hands and soles of the feet in the evening, and chilliness in the morning; white, foul or rough tongue; bitter taste in the mouth; sickly or yellowish hue of the countenance; depression of spirits; and in some cases elevation of the shoulders, are the chief symptoms of hepatitis." In the very severe cases, the

general symptoms may not be any more severe, but there is marked local evidence of serious disease.

The above symptoms are drawn to the life, as the disease was formerly viewed, and it will be easily perceived that the diagnosis of liver complaint would be made in every case of chronic disease, and the only difficulty would be to find anything else to treat.

DIAGNOSIS.—We will diagnose a chronic inflammation of the liver by the feeling of weight and tension, and dull pain in the right hypochondrium, and by the evidence of change of its secretion, in bilious diarrhœa, in its being thrown into the stomach, in its appearance as jaundice, or in the urine.

PROGNOSIS.—Chronic hepatitis can be readily cured, unless the inflammation has passed on to structural change, or resulted in degeneration.

POST-MORTEM EXAMINATION.—The liver is found in various conditions: at times large, soft, friable, and discolored; again, hard, contracted, and blanched. The morbid changes in the majority of cases, will range themselves under one of the two heads, hypertrophy or atrophy, as the symptoms during life indicated hypersecretion, or want of secretion. Atrophy of the liver is of far the most frequent occurrence, and is almost always attended by structural change. In some cases there is *induration*, the degree of density varying from that of the organ normally to almost a cartilaginous condition. The *cirrhosis* of Laennec is the last and severest form, the entire organ becoming wrinkled and shriveled, diminished to one-half its natural bulk, and of a yellowish or greenish-brown color.

TREATMENT.—A gentle excitant to the liver and bowels will take a prominent place in the treatment of the milder cases. This we might obtain from the Compound Tincture of Corydalis, already named, or from the Chionanthus Virginicus, which exerts a special influence upon the organ. It is especially effective where there is jaundice. The tincture may be given in doses of one-fourth teaspoonful four or five times a day; or an infusion of equal parts of Leptandra and Dioscorea has proven advantageous; or the Podophyllin pill to keep the

bowels open, will answer the purpose. If there is tendency to irritation of the stomach, the Peach bark tea is an admirable remedy; or the Hydrocyanic Acid may be used. Alkaline diuretics, as the Acetate or Citrate of Potash, are important parts of the treatment. I usually administer them with the Carbonate of Ammonia, or Chlorate of Potash, in doses sufficient to keep the urinary secretion free.

The daily use of the bath, with brisk friction, should always be recommended, as it relieves irritation of the nervous system, and also acts as a derivant. The most important measure is the use of counter-irritants, without which we can not succeed in many cases. The irritating plaster is preferable to any other means, and should be continued as heretofore recommended, until the soreness, weight, and tension has entirely disappeared.

A bracing tonic treatment, with a moderate quantity of stimulants, aids in establishing health after the severer symptoms have passed off. The Iodine pill, heretofore named—

℞ Iodine,
Extract of Nux Vomica, aa., grs. vj.
Hydrastin. ʒss.
Extract of Taraxicum, q. s. M.

Make thirty pills—sometimes answers an admirable purpose, in doses of one pill three or four times a day.

FUNCTIONAL DISEASES OF THE LIVER.

No function is so obscure as that of the liver, and yet none has been so patiently investigated; something, it is true, has been gained; we can determine accurately the constituents of bile, what it is formed from, when it is formed, and the conditions necessary to its elaboration; and yet we have no positive knowledge of what becomes of it, or of its use in the economy. This being the case, it is no wonder that the diseases of function are obscure; and being thus obscure, and investigated with difficulty, that ignorance should continually prate about disease of the liver, liver complaint, etc., connect it with every other affection, and adopt a treatment which, being applicable to this, was applicable to all diseases, as this formed a part of them. I well recollect the studied care with which the professors in *regular* colleges, some years ago, would undertake to prove the liver the seat or cause of all disease, and with what enthusiasm they would point to the remedy.

According to the best authority, we may consider the bile, first, as an excretion, which, if not removed from the blood, will give rise to a class of symptoms termed jaundice, and if continued for any considerable length of time will arrest the processes of life; second, as having some special function to perform in the act of digestion, so that if arrested or changed materially in quality, this function is impaired or entirely arrested; lastly, that it furnishes some material to the blood by absorption from the alimentary canal, which is essential to its normal condition. It will thus be seen that much derangement of function will be followed by severe derangement of the system; but fortunately these changes are of very unfrequent occurrence, instead of being the most frequent, as formerly supposed.

EXCESSIVE ACTION.

Hypersecretion of bile occurs occasionally as the result of irritation and congestion of blood. The bile being irritant to the intestinal canal, gives rise to increased peristaltic action and diarrhœa. It is termed bilious from its color, yellowish-brown or green, and from the fact that an excess of bile may be found in the fæces by analysis. An inverted peristaltic action may take place, the bile being thrown from the duodenum into the stomach, giving rise to nausea and vomiting, and being ejected by the mouth; this is attended by diarrhœa, and has sometimes been called bilious cholera. Bilious diarrhœa is attended with considerable pain of a twisting, griping character, with a feeling of soreness in the bowels; occasionally there is considerable febrile action, with dry skin and scanty secretion of urine. In some cases, the patient complains of pain in the right side and shoulder, with a feeling of tension and fullness in the right hypochondrium, and possibly enlargement of the liver. This excessive action may occur frequently as in cases of disease of the stomach, or it may occur but once.

TREATMENT.—When there is but little febrile action, we will sometimes find that Chloroform, ℥j., to Compound Syrup of Rhubarb, ℥ij., in doses of a teaspoonful every half hour, will prove sufficient. In these simple cases I prefer the use of a cold pack to the region of the liver and stomach.

When there is febrile action, I prescribe the Aconite in the usual doses, sometimes assisting it with Veratrum, and others

with Ipecac. To control the irritation of the bowels, Bismuth in the usual doses will be found successful. In some cases, an infusion of equal parts of Dioscorea and Epilobium will do well, or if there is much irritation of the stomach, the Peach bark may be used instead of the first.

Counter-irritation over the right hypochondrium may be employed, if there is soreness, and in the more severe cases, followed by hot fomentations to the side and over the abdomen. If there still remains a feeling of languor, with dry and constricted skin, hard pulse, headache, with coated tongue and dry or clammy mouth, the Acetote of Potash in doses of ʒss three or four times a day, with equal parts of Quinine and Hydrastin, in doses of three grains two or three times a day, will complete the cure.

DEFICIENT ACTION.

Torpor of the liver is of more frequent occurrence than any other functional derangement, and is probably due in a majority of cases to diseases of adjacent parts of the intestinal canal. It is frequently associated with dyspepsia, and hence the prominent symptoms named under that head, were formerly considered to indicate torpor of the liver.

Thus, Copland, speaking of this derangement, says: "When the patient complains—after having enjoyed good health, or without having experienced on former occasions, either acute or chronic affections of the liver or stomach, or other severe diseases likely to implicate the organ—of dyspeptic symptoms, with a costive or irregular state of the bowels, the stools being pale or clayey, and the urine dark or high-colored, or thick after having cooled; of want of appetite, drowsiness or pain over the eyebrows, lowness of spirits or hypochondriacal feelings; of flatulency of the stomach and bowels, a foul and loaded tongue, and a bitter and disagreeable taste in the mouth, particularly in the morning, and of a sallow, dark and muddy appearance of the countenance or skin; but without any pain, febrile movement toward night, or thirst, or chills followed by heat, or hardness of the pulse, or fullness or tenderness in the region of the liver, it may be reasonably inferred that the functions of the liver are simply impaired."

Congestion of the liver will in most cases give rise to deficient action, and this may be usually determined by the fullness or

tension in the right hypochondrium, especially if it has followed dissipation. We may recognize two causes, the one just named, and a simple depression or exhausted state of the vital energy of the organ, generally owing, as above mentioned, to disorder of adjacent parts. The symptoms given will embrace all cases, and though not all dependent upon torpor of the liver, they are frequently associated with it.

TREATMENT.—When the torpidity is of recent occurrence there is but little difficulty in the treatment. A mild cathartic of Podophyllin and Leptandrin, with the Extract of Hyoscyamus, given in small doses, so as to produce one or two evacuations daily, is useful in some cases. Or, if the patient is stout and rugged, and the disease sudden in its appearance, they may be prescribed to produce a marked effect. These remedies may be used, lessening the dose daily, until the bowels become regular. The appetite may be improved as well as the innervation of the bowels and liver, by the administration of

℞ Extract of Nux Vomica, grs. iv.
Hydrastin, ʒss.
Extract of Leptandra, q. s. M.

Make thirty pills, of which one may be taken three or four times daily. If the skin is dry and harsh, we obtain great benefit from the use of

℞ Tincture of Asclepias,
Tincture of Dioscorea, aa., ʒss.
Hydrochlorate of Ammonia, ʒj.
Simple Syrup, ʒij. M.

In doses of a teaspoonful every three or four hours; or, Comp. Tincture of Corydalis, Gin Bitters, in equal parts, in doses of a tablespoonful four times a day, and ʒj. of Acetate of Potash in the twenty-four hours.

If the torpidity does not yield readily, Sulphate of Quinine, associated with Hydrastin, in doses of ten or twelve grains daily, will be found advantageous; and if there seems to be a demand for Iron, the Prussiate may be added to the compound. The trunk should be sponged with salt water daily, and the bowels rubbed thoroughly, and occasionally, if there seems to be undue tension and rigidity of the abdominal muscles, the wet bandage may be applied on going to bed at night.

NEURALGIA OF THE LIVER.

Neuralgia of the liver occurs occasionally in persons of a nervous habit, and who have had neuralgia in other parts of the body, or derangement of some of the abdominal viscera. It is most frequently produced by cold, fatigue, or over-excitement.

Symptoms.—The pain usually comes on suddenly, and is intense in its character; sometimes the patients describe it at first, as being a stitch in the side, preventing their straightening up; being easier in a few minutes, they would flatter themselves that it had disappeared, but it would return again with more intensity, sometimes becoming almost unbearable. Some persons are so subject to it, that they can not undergo active exertion without bringing back the pain. In the severer cases, it continues for hours, the epigastrium and abdomen becoming tender, and the pain frequently passing to the right shoulder and spine.

Treatment.—The immediate treatment for a severe attack would consist in the application of a sinapism, followed by hot fomentations, the Mustard foot bath, and internal administration of five-grain doses of Diaphoretic powder as often as seems necessary. In place of this Chloroform ℥ss, with Compound Syrup of Rhubarb ℥jss, in doses of a teaspoonful every half hour or hour, answers well. If the attack is very severe, the hypodermic injection of Morphine will give the speediest relief. The pill of Podophyllin and Hyoscyamus, heretofore named, might be given to produce an action of the bowels For its permanent removal, a tonic treatment should be adopted, especial attention being paid to overcoming constipation and irregularity of the bowels.

GALL STONES.

Gall stones are sometimes formed of inspissated bile in the ducts of the liver, or in the gall-bladder, but most generally of cholesterine, mixed with the coloring material of the bile. The causes of these formations are, to some extent, doubtless, to be found in the constitution of the bile, but in the case of cholesterine stones, principally in disease of the coats of the gall-bladder.

These concretions vary in size from a small pea to a mass as large as a hen's egg, or even larger. They are found in the gall-bladder, or in the ductus choledochus, and also in the intestinal canal, being sometimes round, but more frequently oval in form. They are only found in persons past middle age, and are said to be more frequent in women than in men, Among the predispositions to their formation may be named sedentary occupations, and close confinement, and associated to fatty degeneration of structure, and frequently to lithic acid deposits in the urine.

Gall-stones may remain within the gall-bladder for a long time without giving rise to any symptoms that may be noticed. If they produce inflammation and ulceration, the symptoms would be observed. They may pass down and close the cystic duct, giving rise to disorder of digestion, caused by loss of this receptacle of bile. They may pass into the common duct, and lodging give rise to jaundice, by obstruction. Lastly, they may pass through the ductus communis into the duodenum, and be discharged with the fæces.

"The symptoms of the passing of gall-stones generally come on suddenly, two or three hours after eating, with severe pain, like that of colic, in the region of the gall-bladder. The pain is not equal. There is constant, dull, aching pain, which is every now and then interrupted by a paroxysm so excruciating that the patient bends himself double, or rolls about the floor, at the same time pressing his hands firmly against the pit of the stomach, which sometimes eases the pain. These severe paroxysms produce great exhaustion; the pulse becomes slow and weak, the face pallid, and the whole body is covered with a cold sweat. Together with these symptoms, there is distressing nausea and frequent vomiting. The matters vomited are very acid, and in cases of repeated vomiting, while the common duct is not closed, are bitter."—(Budd.)

The attack lasts a variable length of time, sometimes but a few moments, at others hours, and again, in rare cases, for several days, depending upon the number and size of the calculi that pass. When the attack is greatly protracted, and more than one passes through the duct, there is an interval of ease between; if continued long, symptoms of jaundice, with marked prostration, make their appearance, and there

is severe derangement of other functions. In some persons these attacks occur at longer or shorter intervals for years.

Though excessively painful, the danger is not usually great. When a fatal termination results, it is caused by impaction of the calculus in the common duct, or by exciting inflammation or closure of the duct, and in rare cases by causing obstruction of the bowels and fatal ileus.

TREATMENT.—Various means of treatment have been proposed to facilitate and hasten the passage of these concretions. Some recommend the use of an emetic, which will answer a good purpose if given in nauseating doses until the system is completely relaxed, and then carried to free emesis, large quantities of warm water being taken to favor its action. Dr. Prout recommended the giving of large draughts of hot water containing Carbonate of Soda in solution, in the proportion of one or two drachms to the pint. It was urged that the alkali counteracted the acidity of the stomach, and thus relieved some of the most distressing symptoms, and acted as a fomentation to the part. Full doses of Opium have been given with advantage for the relief of the pain; it has been best used with Hydrocyanic Acid, which relieving irritation of the stomach, enabled the Opium to be retained.

As a local application, the hot fomentations of Hops, Stramonium or Poppy-heads, will often relieve the suffering. They should be applied as hot as can be borne, and frequently renewed. If they fail of giving relief, we may resort to the application of cold, as a towel wrung out of ice water, or pounded ice in a bladder. Sometimes the local application of the Tincture of Aconite with Chloroform gives relief.

If these measures fail, the vapor bath, or alcoholic vapor bath may be used, with the free employment of an infusion of Asclepias and Lobelia. These means should be carried to the production of copious diaphoresis and complete relaxation. As a last resort, and a most efficient one, use Chloroform as an anæsthetic to such an extent as to control the pain.

The pain ceasing for some time, leading to the inference that it had passed into the intestine, a mild cathartic of Compound Powder of Jalap and Senna, with copious injections of warm water, should be used to hasten its removal, and the

discharge of the accumulated bile. Afterwards, small doses of Leptandrin, with Hydrastin, will be sufficient in most cases to remove the condition upon which their formation depends. Various remedies have been proposed as solvents of gall-stones, but with very little or no success; the one most relied on was a mixture of three parts of Sulphuric Æther with two of Essence of Turpentine.

At the present time Soda and Chloroform are used for this purpose. It is believed that cholesterine is held in solution by a salt of soda, and that its deposit is evidence of a deficiency of this salt; hence the Bicarbonate and Sulphite are used in doses of five to ten grains, three times a day. Chloroform is the best solvent for cholesterine, and is given in doses of ten to twenty drops once a day.

JAUNDICE.

Jaundice should be considered as only a symptom, and may occur in most affections of the liver. It consists of the retention and absorption of the coloring matters of the bile, and their deposit in various structures, principally the skin and conjunctiva; occasionally it is deposited in the deeper structures, as of the eye, giving rise to yellow vision; in the nails and in internal organs. It is supposed to arise in two ways. 1st, by some impediment to the free passage of bile from the lobules where it is secreted to the duodenum, and its consequent absorption; and 2d, by defective action on the part of the liver, the materials of the bile not being removed from the blood.

We may classify the causes of jaundice as follows: *a*, from hypersecretion of bile; *b*, from congestion of the liver and portal system; *c*, from chronic alterations of the structure of the liver, preventing secretion or the free discharge of bile; *d*, from spasm or temporary obstruction of the biliary ducts; *e*, from obliteration, or compression of the biliary ducts or gall-bladder; and lastly, from disease of the duodenum, partially or entirely occluding the ductus communis.

SYMPTOMS.—The symptoms of jaundice vary very greatly, depending upon the course, the extent of disease of the liver, and its complications. Usually, there is disturbance of the

bowels, colicky pains, constipation, the fæces being clayey, pale, and scanty. The mouth is dry, has a bad taste, tongue coated, and sometimes nausea and pain in the head. The yellow tinge usually makes its appearance in the eyes, and gradually extends to all parts of the body, the color being deepest in the folds and wrinkles of the skin. Usually the skin is harsh and dry, and the urine high-colored, at first yellowish, but afterward saffron-colored, frequently coloring the clothing that it comes in contact with. "The patient generally complains of a severe, heavy, or lancinating headache, with a sense of heat, particularly in the forehead; and he frequently falls into a state of despondency or melancholy, or becomes morose. There is sometimes lethargy and frequent watchfulness. The tongue and palate are coated with a yellowish sordes, and a bitter taste is felt in the mouth. The appetite is extremely irregular, sometimes being entirely lost, at other times ravenous. Thirst is usually present. Pain, weight, or a dragging sensation and tenderness, are often felt at the epigastrium; frequently with flatulence and eructations, nausea, difficult or painful digestion, and vomiting of a bitter, acrid and somewhat dark fluid. In some cases acute pain rises in the course of the common duct, and increases as it reaches the epigastrium, with more or less uneasiness in the region of the liver and top of the right shoulder, or beneath the right scapula, or between the shoulders."—(Copland.)

In some cases febrile action is a marked feature of the affection, the fever being remittent or intermittent in its character, and attended with weight and tenderness in the right side, and marked derangement of the digestive functions; these cases are generally acute. In others it comes on slowly, with symptoms of marked cachexia and prostration. The skin changes its color very gradually, but at last, after weeks, or sometimes months, becomes of a yellowish-green or bronze color: in this case the disease will be found to depend on serious structural lesion of the liver. In others, the symptoms are developed with rapidity; the skin becomes intensely yellow, or yellowish-green; there is great prostration of strength, languor, listlessness, great depression of the nervous system, and finally delirium or coma, the disease frequently terminating fatally. Or it may come on very slowly, the skin gradually gaining a dull yellowish tinge, the symptoms

being those described under the head of deficient secretion or torpor of the liver; in this case, the jaundice is from retention of the materials of the bile in the blood.

DIAGNOSIS.—It is very easy to recognize jaundice, the peculiar appearance of the patient telling the story at the first glance; but it is a difficult matter to determine the condition upon which it is dependent.

PROGNOSIS.—The prognosis should be favorable in those cases in which it is not dependent upon structural disease of the liver. If caused by this, it will depend upon the character of the disease, and the prospect of its removal.

POST-MORTEM EXAMINATION.—In some cases, no apparent lesion can be found to account for the death or the jaundice. In others, the liver will be found variously changed; congestion, inflammation, suppuration, atrophy, cirrhosis, closure of the gall-ducts, presence of gall-stones, hydatids, malignant disease, etc., will account for the symptoms.

TREATMENT.—The treatment of this affection will have to be varied, and adapted to the disease or condition of the system giving rise to it. It is generally supposed that all that is necessary is to give some medicine that will act on the liver, and increase the secretion of bile; and for this purpose our old-school friends give Mercury, the new-school Podophyllin—and in many cases to the detriment of the patient.

If there is a feeling of fullness in the region of the liver, with tenderness on pressure under the false ribs and epigastrium, with some febrile action, I should order cups to the side, followed by hot fomentations if the disease was acute, and the irritating plaster if chronic; the warm or spirit vapor bath may be used in acute cases. The patient should have full doses of Veratrum if the pulse was full and strong, with the addition of Gelseminum if there was irritation of the nervous system. But if the circulation was feeble I would prefer the Aconite, with Belladonna if there was a tendency to stasis of blood. To favor diaphoresis, an infusion of Asclepias and Dioscorea, with the Diaphoretic powder may be employed; and, as a special remedy for the jaundice, the tincture of Chionanthus in doses of fifteen drops every three hours.

This may be followed by a solution of Acetate of Potash, and small doses of Podophyllin and Leptandrin, as,

℞ Podophyllin,
Leptandrin, aa., grs. ij.
Lactin, ʒj. M.

Triturate thoroughly, and divide into twenty powders, of which one may be given every three or four hours. If there is continued tendency to fever, with arrest of secretion, Quinia and Hydrastin may be used as heretofore recommended.

If the disease comes on slowly, and has lasted for some time, the vegetable alteratives, with saline diuretics, the judicious use of tonics, and the thorough use of the bath, will be the principal means. If there should be tenderness on pressure over the liver, the irritating plaster will materially aid the treatment. Being satisfied that there is no structural lesion, making it impossible for the liver to respond to the action of remedies, we may employ small doses of Podophyllin as above named. In these cases I have used the Tincture of Leptandria and Dioscorea with the Comp. Syrup of Rhubarb and Potash, also Nux Vomica with Hydrastia as heretofore named.

If from exuberant secretion of bile, as evinced by bile in the fæces, and sometimes by bilious diarrhœa, the administration of Leptandrin, Discorea and Opium, with cups to the side, will be appropriate. If from congestion of the portal circle, manifested by bloated countenance, livid lips and absence of bile in the fæces, the treatment should be commenced with a saline purgative, the use of the hot foot bath, and other means to determine to the skin, and saline diuretics. These means may be followed by agents that act directly on the liver, the Chionanthus deserving special mention. Chlorate of Potash with Extract of Conium, sometimes answers an admirable purpose.

If there is manifestly torpor of the liver, the jaundice being slight, the common Comp. Podophyllin Pill may be used, and frequently with the result of speedily removing the difficulty. When the cause is obscure, the indications should be met as they arise, all harsh and debilitating measures being studiously avoided. The diet should be bland and easily digested, the bowels kept soluble by an occasional laxative pill; the daily bath, with brisk friction, employed; and care used to keep the kidneys acting normally. Much may be accomplished in this way, while if harsh measures were adopted, the case might speedily terminate fatally.

ACUTE ENTERITIS.

By this I intend to designate an acute inflammation of all the coats of the small intestine, in contra-distinction to *muco*-enteritis, or an inflammation confined to the mucous coat. Fortunately it is not of very frequent occurrence, as it is one of the severest and most fatal diseases of the intestinal canal. It may be caused by cold, by irritating articles of food, or follow other affections of the bowels.

SYMPTOMS.—In some cases it may be preceded by irritation of the intestinal canal and diarrhœa, but usually it manifests itself first as a soreness and tenderness about the umbilicus, with constipation. Chills or rigors soon make their appearance followed by slight febrile reaction; they may continue thus for two or three days, or the first chill may be followed by a remittent or continued fever. Sometimes the fever runs high for the first day or two, but passes into exhaustion with great rapidity. The pain and tenderness felt at the beginning, are now very severe, the patient can bear no pressure over the abdomen, which is much distended. The abdominal walls are hard, and sometimes seem knotted; and the patient lies upon the back, and draws the feet upward to take off their tension. The patient feels as if the bowels should be moved, and not unfrequently insists on trying to evacuate them, the straining greatly increasing his sufferings. The constipation is obstinate, and is usually increased, and irritability of the stomach and vomiting excited, by the injudicious use of cathartics in the early stage of the affection. As the disease advances to a fatal termination, the pulse becomes thready and weak, respiration quick and anxious, the tongue coated a dirty-brown, with sordes on the teeth, the bowels much swollen and exquisitely tender, except shortly previous to death, when all sensibility disappears, and the patient's mind wanders, or is sometimes perfectly clear, hoping for relief even to the last.

DIAGNOSIS.—We will diagnose this affection from bilious or lead colic, or intussusception, by the rigors, active febrile action, and evidences of inflammation upon examining the abdomen. From muco-enteritis it may be determined by the obstinate

constipation. A careful examination should be made to determine that the symptoms are not the result of hernia.

Prognosis.—Though a very serious disease, we may expect to save a considerable portion of our patients, if it is properly diagnosed at the commencement. If, however, cathartics have been freely employed in the early stage of the affection, the prospect is not very flattering.

Post-Mortem Examination.—The entire thickness of the intestine is usually found to present evidences of inflammation, or determination of blood. There is more or less effusion under the peritoneal coat, and sometimes from its free surface; occasionally causing adhesion of the intestines to the adjacent parts, and in some cases perforating the bowels; other organs may be incidentally affected.

Treatment.—A very careful treatment, using remedies as they are indicated, has proven much better than the olden time medication. The patient is kept quiet in bed, straining at stool avoided, and he is enjoined that patience is not only a virtue, but the best of medicine.

The fever is controlled by small doses of Aconite or Veratrum, to which is added, as may be indicated, Dioscorea, Gelseminum, Belladonna, Rhus, Bryonia, or other remedies to relieve nervous irritations and pain. Occasionally we may be obliged to use large rectal injections of warm water, or if there is much tenesmus, injections containing Tincture of Opium.

Continuous fomentations of hot water, hops, stramonium, or even the hot mush poultice, gives great relief. Occasionally the pain will be so severe that we will control it with a hypodermic injection of Morphine, as near the seat of pain as possible.

If there is nausea, it may be treated with small doses of the Compound Powder of Rhubarb in infusion, or an infusion of the bark of the Peach tree, or Hydrocyanic Acid, and the application of a sinapism to the epigastrium. If there is hiccough or singultus, raw Brandy in small quantities will usually give relief.

Relief may be sometimes given from the extreme distension of the bowels by using copious injections of warm water, with the addition of a small portion of Turpentine and Assafœtida; if, however, it increases the pain, it should be discontinued.

As soon as the irritation commences to pass off, the bowels may be moved with the Compound Powder of Jalap as an enema, and Sweet Oil internally.

The food should be of the most bland description, and such as would leave but little debris. In the severest cases, Milk and Limewater will answer the best purpose. The patient must lie quiet in bed, in one position, and all causes of excitation must be carefully avoided.

MUCO-ENTERITIS.

Inflammation of the mucous membrane of the intestinal canal may result from cold, or from acrid or irritating ingesta, It may be confined to the small intestine, or affect the stomach, gastro-enteritis; or the large intestine, dysenteric-diarrhœa.

SYMPTOMS.—It usually makes its appearance with tenderness about the umbilicus, more or less pain, and a desire to evacuate the bowels frequently. There is diarrhœa, the operations being sometimes large, at others small, but never seem sufficient to gratify the desire. Frequently the patient feels the tendency to a motion, but nothing passes, or does not pass until they have been to stool some time. They vary in character, being usually yellowish, thin, acrid, and combined with more or less mucus. There is more or less constitutional disturbance, a harsh, dry skin, scanty secretion of urine, hard pulse, and coated tongue. Sometimes there is pain in various parts of the body, and marked headache.

If the stomach is involved, there is nausea with occasional vomiting, the stomach being irritable, and frequently rejecting all medicines that are given. If the larger intestine is involved, there are the tormina and tenesmus of dysentery in addition to the symptoms of this affection, the stools being sometimes diarrhœal, sometimes dysenteric. If it continues for a considerable length of time, ulceration may occur, the operations containing pus, and the system very much exhausted.

Inflammation of the glands of the intestine may occur as a primary disorder, exhibiting the following symptoms: "At first of slight disorder of the digestive functions, consisting chiefly of colicky pains, want of appetite, and relaxation of the bowels, ceasing and recurring from time to time. There

are also borborygma, flatulence, mucous stools, a relish chiefly for the more stimulating articles of food, a white or loaded tongue, a soft and languid pulse, and a turbid state of the urine. In other cases, the symptoms are more severe at the commencement. The appetite is lost, the tongue presents a grayish-white or yellowish coating, and is somewhat red at its point and edges; the mouth is clammy, occasionally apthous, with an insipid, sickly, nauseous and sour taste; the breath is disagreeable and fœtid, and there is tenderness upon firm pressure around the bowels."—(Copland.) In the more severe cases, there is a low form of fever, with great prostration, exhibiting at last all the symptoms of typhoid disease, which it may be truly called.

DIAGNOSIS.—We diagnose mucous inflammation of the small intestines from simple diarrhœa, by the manifest symptoms of constitutional disturbance and inflammation.

TREATMENT.—The administration of astringents to check the diarrhœa, does not answer well in this case, usually increasing its severity. As the diarrhœa is dependent upon inflammation, it is evident that this should be first removed. For this purpose I prescribe—℞ Tincture Aconite gtt. v. to gtt. x, Tincture Ipecac. gtt. x to gtt. xx, Water ℥iv; a teaspoonful every hour. If there is much pain in the bowels, I add to this the tincture of Dioscorea gtt. xx to ℥j. If the stomach is very irritable the sedatives may be given in smaller doses, frequently repeated, and a sinapism or cold pack applied to the abdomen. When there is nausea with sallowness of the surface, and a pallid tongue, small doses of Nux may be alternated with the Aconite. If the tongue is pallid and covered with a dirty coat, give Sulphite of Soda in the usual doses; and when it is *deep-red* give Muriatic Acid; and Baptisia when there is dusky coloration of the tongue, with brown coating—gtt. x to water ℥iv, a teaspoonful every hour.

The Epilobium will be found a most efficient agent in these cases, associated with the means above named. The administration of equal parts of Dioscorin, Leptandrin, and Geranin, in doses of two or three grains, in connection with the special sedatives, is very good treatment. If there are griping, colicky pains, Salad Oil taken pretty freely to move the bowels, and

followed by an opiate, answers a very good purpose. The White Liquid Physic (℞ Sulphate of Soda, ℥viij; dissolve in Water, Ojss; and add Nitric and Muriatic Acid, aa, ℥j), in doses of a tablespoonful every hour, with Simple Syrup, until it moves the bowels, and then followed by an opiate, will occasionally prove useful, especially in cases of irritation of the stomach with nausea and vomiting, or when there is tendency to dysentery.

The inflammation having subsided, if diarrhœa still continues, we may treat it with astringents, as we would a case of simple diarrhœa. If there should be a tendency to chronic enteritis, the irritating plaster should be applied to the umbilical region until relief is obtained. If the disease exhibits marked evidence of periodicity or the fever should be persistent, use Quinia in full doses; or if there are gaseous accumulations, with fœtid eructations and discharges, the Chlorate of Potash, Soda or Lime.

CHRONIC ENTERITIS.

Chronic inflammation of the small intestines occurs as the result of the acute disease, or it may be gradually developed during diarrhœa. It constitutes chronic diarrhœa, and may occur at all ages and in all climates, but is more frequent in Northern persons who have spent the warm season in the South. It may extend to the stomach, giving rise to symptoms of dyspepsia, or to the large intestine, inducing dysentery.

SYMPTOMS.—In chronic diarrhœa we find the patient having a variable number of fluid or semi-fluid evacuations from the bowels in the course of the day. They may or may not be attended by colicky pains about the umbilicus, and more or less tenesmus. The discharges are of variable color, sometimes light, at others dark-brown, greenish, yellow or clay-colored, watery or pultaceous, containing mucus, pus, shreds of lymph, and sometimes blood. Occasionally they are large, but most usually of moderate size. The patient is very much reduced in flesh, has lost strength and energy; the appetite is poor and variable; the food does not seem to digest well; there is dryness and constriction of the skin, which is yellowish or sallow, and seems shriveled, with imperfect action of the

kidneys. The nervous system is deranged, the patient being restless, irritable and nervous, usually not sleeping well at night, and troubled with occasional wandering pains and headache. Sometimes we find a marked remittent fever with it, and in the later stages hectic fever and night sweats.

Diagnosis.—The diagnosis of chronic enteritis is easy; the long continuance of the diarrhœa, the peculiar character of the discharge, the tenderness of the bowels, and general derangement of the system, are very marked symptoms.

Prognosis.—The prognosis is favorable in those cases in which the disease is not of long duration, and in those in which there has not been much disturbance of the general health. When the system has suffered severely, all the functions being deranged, the prognosis is doubtful.

Post-Mortem Examination.—The intestine is found in various conditions—sometimes thickening of the mucus membrane with discoloration and superficial ulceration; at others it seems to be softened, with a flocculent pultaceous material attached to it, or there may be deep ulceration or thinning of the mucous membrane, or dilatation or stricture, and in some cases perforation. Occasionally, from inflammation of the serous coat, the intestines are found tied together by a false membrane, or adherent to other viscera.

Treatment.—If I should say, treat it as an inflammation, and let the bowels take care of themselves, I should give very good advice, and save patients and physicians a world of trouble. In this case, if there are no special indications, I would prescribe—℞ Tinct. Aconite gtt. x, Tinct. Ipecac. gtt. xx; Water ℥iv; a teaspoonful every hour. In some cases with a full pulse Veratrum may replace the Aconite. If the patient suffers from nausea, with pallid tongue, full tissues, and hypochondriac pain, Nux may be alternated with the sedative, giving it in very small doses. If there is much pain with tenderness, the Dioscorea may be given with the first prescription, or alternated with it. If the tongue is pallid and dirty, give Sulphite of Soda. If the skin shows a jaundiced tinge, the Chionanthus may be given in doses of ten or fifteen drops four times a day. If the bowels are tumid and

full, I know of no better means than thorough inunction with the ointment of Uvedalia, and the remedy may sometimes be used internally with advantage. If the patient complains of pain in the bowels, we may sometimes use the Quinine inunction with marked benefit. Sometimes the White Liquid Physic, in doses sufficient to stimulate the liver to action and change the character of the evacuations, and followed with Quinine and Hydrastia, will be useful, repeating the physic whenever the discharges look bad.

I have had most marked success with the Epilobium in very severe cases. I employ it in infusion, adding Brandy, and sweeten to render it pleasant. Of the strong infusion I give a tablespoonful an hour, and continue it until the discharges are checked. The Geranium, or Hamamelis, may be used in the same way, after the administration of the Leptandrin, as may also the Marsh Rosemary. The Persulphate of Iron answers an excellent purpose in some cases, in doses of from two to five grains four times a day; of course it must not be given with the vegetable astringents. The Comp. Powder of Rhubarb and Potash gives a valuable adjunct to these means, and is best used in the form of infusion.

Counter-irritation can not be dispensed with. In the severer cases, I employ the irritating plaster used as heretofore recommended, and persisted in until the disease yields. If not so severe, I sometimes use Turpentine stupes, or a strongly stimulating liniment. In others, the Vinegar bandage, worn constantly, or only at night, answers the purpose; and again, the wet bandage may be used at night. If there is irritation of the spine, with tenderness, counter-irritation must be employed to remove it.

The bitter tonics and stimulants answer a good purpose after we have modified the diseased action, and improved the secretions. Quinia and Hydrastine are best where there is febrile action in the afternoon and evening; but in other cases, I usually employ,

℞ Tincture of Collinsonia,
Tincture of Cornus,
Glycerin,
Simple Syrup, aa., ℥ij.

In doses of a teaspoonful every three hours. If there is derangement of the stomach, with increased secretion of mucus, with a bad taste in the mouth and nausea, use the Oxide of Zinc in

doses of one grain four or five times a day, or the Sulphite of Soda in ten grain doses will be of advantage. The Gin Bitters are an excellent stimulant, when this is required.

Strict attention should be given to the patient's diet, that it be nutritious, easily digested, and leave but little debris. Still, we find many cases in which the appetite seems to be the best judge of what is beneficial to the patient. Gentle exercise in the open air, and a residence on high ground, is of marked benefit.

SPLENITIS.

Diseases of the spleen are somewhat obscure, the symptoms not being very well marked, and the derangements of function consequent upon it being as various. If we except acute inflammation of this viscus, there are no other diseases that will present more uncertain symptoms. We can readily see why this is, if we call to mind its situation and structure, and what we know of its function. Situated in the left hypochondrium, it is readily moved in all directions, and can occupy a less or greater space without any or but slight derangement of function of adjacent parts. In structure it is adapted to permit of great distension and enlargement, and a greatly increased or diminished circulation of blood. Its function is very obscure; all that we know definitely is, that it serves as a diverticulum for the blood of the portal circulation, and in some manner caters to the liver, preparing the blood for it. In addition, it would seem to exert a devitalizing influence upon the red-globules, they being broken down in the splenic vein to a greater extent than in other portions of the system, and to generate white-globules, they being in excess in this vein. The last proposition is still further proven by the fact that in cases of leucocythemia the spleen is invariably hypertrophied.

Symptoms.—*Acute splenitis* most generally results from injury though it may in some cases arise during disease of the liver or intermittent fever. If it does not arise during intermittent fever, a remittent fever invariably comes up with it. The first evidences of disease make their appearance with a marked chill or rigor, the patient complaining of a sense of fullness and deep-seated pain, or soreness in the region of the spleen.

Febrile action follows the chill, and is usually pretty severe. the tongue is heavily coated at the base, the mouth clammy and frequently bitter; there is nausea and vomiting sometimes of bile; headache is a prominent symptom—dull, heavy, with occasionally sharp, shooting pains; the bowels are costive, the skin hot and dry, and urine scanty and high-colored. With the development of febrile action, the pain in the side becomes more severe, and is tensive and tearing in its character, shooting over to the stomach and liver, and upwards to the back and left shoulder.

The fever is almost always remittent, the remissions occurring in the early part of the day. Frequently they become more and more obscure, until it seems that the fever is continuous. If it progresses without amendment, we find the patient becoming more and more prostrated, the digestive organs very much deranged, as is evinced by the brown coating of the tongue, entire want of appetite and frequent nausea, offensive evacuations from the bowels, etc., and the fever assuming a typhoid type.

Chronic splenitis is usually associated with intermittent fever, or disease of the stomach or liver. It comes on slowly, and is evinced by a feeling of tension in the region of the spleen, soreness on deep pressure, and an occasional sharp pain, which seems to catch the patient, and suddenly arrest all exertion.

Hypertrophy of the spleen, or ague cake, may be considered as the result of, or attendant upon sub-acute or chronic inflammation. It is almost invariably an attendant of protracted cases of intermittent fever, the associate organs, the stomach and liver, being more or less affected. The size of the spleen varies very greatly in these cases, sometimes increased to twice its original size, at others enlarged so as to occupy the greater portion of the left side of the abdomen. In these cases there is a feeling of weight, tension and distress, hardly amounting to pain, unless the patient takes active exercise, when there are the sharp catches heretofore named; in consequence of these he is frequently unable to take as much exercise as his health would permit him.

When the result of intermittent or remittent fever, we find the patient decidedly cachectic; the skin sallow, wrinkled and harsh; urine variable, sometimes scanty and high-colored, at others, very abundant, and of low specific gravity; the

bowels irregular, sometimes constipated, at others, diarrhœa; frequently a good appetite, but the food imperfectly assimilated, so as not to increase the strength; and more or less disturbance of the nervous system, manifested by pain in the head, back and limbs, restlessness at night, bad dreams, lowness of spirits, etc. When idiopathic, the patient notices first the enlargement and uneasy sensation in the left side, and as the enlargement increases, there is gradually developed the symptoms above named.

DIAGNOSIS.—The diagnosis of acute splenitis is made from the location and character of the pain, the tenderness on deep pressure, and the marked constitutional disturbance. The sub-acute and chronic forms are more dfficult to determine: the deep-seated pain and soreness, with enlargement; the inability to take active exercise on account of the sharp, catching pain in the side, and very marked derangement of the digestive organs, with general cachexia, are the most prominent features.

PROGNOSIS.—The prognosis is favorable in a majority of cases, of either form of the disease. Occasionally suppuration occurs, marked by rigors and low ataxic fever, in which recovery is impossible. In enlargement of the spleen, the result of intermittent fever, we can usually assure the patient of recovery; but if the splenic enlargement was the original affection, the cachectic symptoms depending on it, the result will be fatal in a majority of cases.

POST-MORTEM EXAMINATION.—In inflammation of the spleen, it is usually found enlarged, and its external coat of a deeper or browner red than in health. The structure is generally very much softened, breaking down under the slightest pressure. The internal structure is frequently grayish and softened, and if suppuration has occurred, the pus will be found in isolated portions within the trabecula, or in some cases forming an abscess, and surrounded by a well-defined pyogenic membrane. In cases of hypertrophy, we frequently find the structure of the organ unchanged; at other times there has been more or less deposit of plastic lymph, which has become organized.

TREATMENT.—There is but little difference in the treatment of this and other inflammations. The patient is put upon the use of the proper sedative—Aconite when the pulse is small, Veratrum if it is full. If the pulse has a sharp stroke, the patient complains of frontal pain, and has the peculiar red tongue, Rhus will have a most marked influence upon the disease. If he is dull, stupid and inclined to sleep, give Belladonna; and if irritable and restless, Gelseminum. These remedies we give with the sedatives in the usual doses.

We will find many cases in which the tongue is broad and pallid, the pallor being a marked feature; in this case, add bicarbonate of Soda to water, to make a pleasant drink, and give freely. If the tongue is pallid and dirty, give the Sulphite of Soda in doses of ten to twenty grains every three or four hours. In some rare cases there will be deep redness of the tongue early in the disease, and we will give Muriatic Acid as recommended in the treatment of fevers. A more common symptom, as the disease advances, is the *dusky* red or livid tongue, with brown sordes, the tissues being full; in this case the remedy is Baptisia.

In some cases we will find marked derangement of the stomach, the tongue being full, heavily coated at the base, and the patient complaining of weight and fullness in the epigastrium. This is the case for a thorough emetic. If there is fullness of tissue and fullness of veins, with a loaded tongue, give Podophyllin.

The hot pack, or fomentations, are applied over the spleen, or if there is acute pain we may use chloroform counter-irritation.

Uvedalia is the remedy for chronic splenitis and ague cake. We use it internally in doses of five to fifteen drops, and have the abdomen, and especially over the spleen, thoroughly rubbed with the ointment of Uvedalia, which should be thoroughly basted in with heat. If there is any one thing certain in medicine, it is that Uvedalia exerts a direct influence upon the spleen.*

**Tincture Polymnia Uvedalia*,—Take recently dried root of Polymnia Uvedalia in coarse powder, four ounces; alcohol, 98°, one pint; mix and digest fourteen days; express and filter. Dose, five to twenty drops three to four times a day. This is a far better tincture than that made from the green root, as the latter contains so much water it greatly weakens the

I should have called attention to the fact that acute splenitis is sometimes a malarial disease, and its periodic character can readily be determined. In this case anti-periodic doses of Quinine are given as soon as the patient is prepared for its kindly action. So in chronic inflammation and ague cake, it may be and probably is associated with a chronic ague. If the reader will now turn to this, and carefully note the symptoms and treatment, he will have the additional treatment I would recommend in this case.

The spleen has been the seat of cystic disease, and it has been so dislocated and changed in structure as to simulate a tumor. Cases are on record in which it has been removed by an operation, and some patients have recovered from this operation. The last case coming to my notice was mistaken for an ovarian tumor, but an incision showed the character of the disease, and the abdomen was closed.

DISEASE OF THE PANCREAS.

The pancreas has been found diseased on post-mortem examination, but it has been very rarely determined during life. Situated so deeply in the abdomen, and covered by the stomach and intestines, seemingly without sympathy with other parts, we can well understand why the symptoms should be obscure. The function of the organ is not very well understood, but we know that it exercises a very important influence in changing chyme into chyle, and possibly the changing chyle into blood. According to Bernard, the pancreatic fluid is the principal agent in the digestion of fatty matters. This is proven by the fact that when the pancreas is diseased, or its duct obstructed, so as to arrest the digestive influence of its secretion, great emaciation and anæmia occur.

Acute inflammation is said to be characterized by an acute and deep seated pain below the pit of the stomach, and extending back and below the left shoulder-blade. There is a

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tincture. One pound of dry root is equal to four to six of the green, according to the season of the year it is gathered, having more water in the Spring and less in the Fall.

Ointment Polymnia.—Take recently dried root, four ounces, or one pound green root Polymnia Uvedalia; hog's lard, one pound; if the dry root is used, add water one pound; mix. Place over a slow fire till all the water is evaporated; express and strain.

sense of anxiety at the præcordia, with burning and constriction in the stomach, dryness of the fauces, and thirst. Occasionally there is derangement of the stomach, with vomiting of a ropy, mucous fluid; sometimes a mucous diarrhœa occurs. With these symptoms there is more or less severe symptomatic fever.

The more chronic forms of inflammation are accompanied by the same deep-seated pain, though not so severe, and the tension and heat are aggravated by taking food. In addition, there are various dyspeptic symptoms, as flatulence, pyrosis, heartburn, etc. In other structural lesions, there is more or less impairment of function, resulting in imperfect digestion and assimilation of food, and gradual marasmus. Cancer of the pancreas is the most prominent disease, and the one most frequently met with.

TREATMENT.—Inflammation of the pancreas should be treated as any inflammatory disease of other organs. We reach an internal inflammation through the blood, and arrest it by checking the rapidity and equalizing the circulation, and by getting free action of the excretory organs; this can be accomplished in inflammation of the pancreas, as well as of other organs. We know of no remedy that acts specifically upon the pancreas, so that it would not benefit us if we could determine its functional diseases.

DIARRHŒA.

Diarrhœa is frequently symptomatic of other affections, or indicative of disease of the small intestines, as in the cases just noticed; but it is also, in many cases, an idiopathic disorder. We may divide it with advantage into the following forms: 1st, From irritation of the intestinal canal; 2d, From increased secretion of bile; 3d, From atony of the intestines; 4th, From congestion of the portal veins, and determination of blood; 5th, From increase of mucous secretion; and 6th, From imperfect digestion.

SYMPTOMS.—Diarrhœa arising from *irritation* may be caused by acrid and irritating ingesta, or result from exposure to cold, or from the arrest of other secretions. The operations are

copious and feculent, sometimes preceded by griping pains, and occasionally attended with an urgent desire to go to stool. The tongue is usually loaded, an unpleasant sensation at the stomach, loss of appetite, and frequently a tendency to headache. As the diarrhœa continues, the strength is materially affected, though there is no febrile action at any time.

Bilious diarrhœa results from hyper-secretion of bile, and may arise from the causes named above. It is rather a common form of the disease in the summer, and in hot climates, and in intemperate persons. The evacuations are at first feculent, but green or greenish-yellow, and pultaceous; but as the disease advances, are more profuse and watery. If it continues for some time they frequently contain more or less mucus, sometimes in loose pieces, at others in thin, glairy and gelatinous pieces. There is sometimes a feeling of tension in the right side, and soreness on pressure; and there is considerable griping pain attending and preceding the discharges from the bowels. The skin is dry and harsh in many cases, and the urinary secretion scanty and high-colored; the tongue coated, a bitter taste in the mouth, and loss of appetite, with sensation of nausea and disgust.

Atony of the intestinal mucous membrane gives rise to diarrhœa by the relaxed vessels allowing their contents to escape. In all diseases attended with great loss of power, we have examples of such profluvia, as in asthenic bronchitis, the œdema of local debility, etc. In this case, the operations are large and watery, or in some cases a watery mucosity, unattended with pain or suffering of any kind. The discharges pass so freely that the patient has sometimes but little notice to prepare for them, or they pass almost involuntarily. There is loss of appetite to some extent; the skin is cool, pale, soft and relaxed, with perspiration; the urine light-colored and of low specific gravity. The debility is marked.

Determination to the intestines, accompanied by partial congestion, gives rise to a diarrhœa, attended by large and fluid evacuations. There is more or less soreness of the bowels and griping pains preceding the operations. The stools are of every shade of color, from pale clay to a greenish or brown color, and are sometimes preceded by nausea. The skin is usually dry and harsh, the pulse hard, the tongue coated, ap-

petite gone, urine scanty, some headache, with tumid bowels, and some pain or soreness on pressure.

Increased mucous secretion gives rise to that form of diarrhœa termed catarrhal. It occurs more frequently in old persons and children, though it may affect all ages. The stools consist of mucus with a small proportion of feculent matter, sometimes large, thin and gelatinous, looking like semi-transparent mucilage; at others, thick and white, or colored by the fæces. At first it gives rise to but little disturbance, but as it continues, the strength fails, the skin becomes dry and harsh, the appetite much impaired, with great loss of strength and emaciation.

Diarrhœa from imperfect digestion is known by the name of *lientery;* it is most frequently observed in children, and rarely in adults. It is undoubtedly owing to imperfect action of the stomach, and increased peristaltic action of the bowels. The evacuations consist in part of fæces, and in part of food, which is discharged from the bowels in nearly the same condition in which it passed into the stomach. Sometimes there is pain attending the operations, but at others none, except a feeling of rawness and soreness of the rectum; if it continues, the patient soon exhibits the effects of arrest of digestion, in a marked marasmus, terminating in stupor and death by exhaustion. During the entire period the appetite is usually good, sometimes voracious, and there is no manifest lesion of any other function.

DIAGNOSIS.—Diarrhœa is very easily diagnosed, and an examination of the discharges and the symptoms will determine its character; this should always be done, as the injudicious use of astringents sometimes gives rise to serious difficulty.

TREATMENT.—The simplest classification of diarrhœas for treatment is, into *irritant* and *atonic*, and these two classes will embrace a large majority of the cases.

In irritant diarrhœa the patient complains of uneasiness in the bowels, uneasiness in going to stool, the evacuations do not give relief, the skin is dry, and the tissues are shrunken and pinched. The remedy is—℞ Tincture Aconite gtt. v. to gtt. x., Tincture Ipecac. gtt. x. to gtt. xx., Water ℥iv; a teaspoonful every hour. This may not check the discharges as soon as Opium or the astringents, but the cure is a good and

permanent one, and in the majority of cases it is much quicker than by the old means.

In atonic diarrhœa the discharges are free, not easily controlled; there are sensations of fullness, and if the hand is laid upon the abdomen it is felt to be full; the surface is usually pale, tissues not pinched. The remedy is—℞ Tincture Nux Vomica gtt. v. to gtt. x., Tincture Ipecac gtt. x. to gtt. xx., Water ℥iv; a teaspoonful every hour.

This is a very simple classification, and the remedies are taken from our pocket cases. If the diarrhœa is somewhat persistent, the tongue full and coated with a yellowish white fur, small doses of Podophyllin may be given with advantage. We may use the trituration, or the pill (Podophyllin 1-20 grain, Phosphate of Hydrastia ¼ grain), one two or three times a day. Or in some cases we may have the remedy triturated with Sub-Nitrate of Bismuth (1-20 of a grain to 5 grains.)

A very persistent irritant diarrhœa, with marked elongation of the tongue, with reddened tip and edges, heart-burn and water-brash, is cured with Liquor Bismuth, one fourth to one teaspoonful every three hours.

An unpleasant and persistent diarrhœa, the discharges being very frequent, the tongue of moderate size with coating removed in spots, bowels tumid, is relieved by the first trituration of Charcoal, in grain doses, alternated with the Aconite and Ipecac.

Diarrhœa with a brown coating of tongue and sordes about the teeth and lips, wants Baptisia. If there is marked uneasiness in the bowels with tenesmus, and scalding of the discharges, the tincture of Colocynth, gtt. x., may be used with the Aconite. Pond's Hamamelis is the remedy when there is a sensation of fullness about the rectum, and inclination to prolapse; and minute doses of Collinsonia are alternated with the Aconite and Ipecac, when the patient complains of a very unpleasant sensation of irritation just within the rectum.

If the tongue is *deep-red*, the patient requires acids, and sometimes an acid will cure the diarrhœa quicker than any other remedy. We usually use Muriatic Acid, properly diluted. Commonly if the tongue is *pallid*, we want a salt of Soda, and if pallid and dirty, Sulphite of Soda. In some

cases small doses of Quinine exert a good influence in increasing innervation, and in others with marked periodicity, we give the usual antiperiodic dose.

A bilious diarrhœa is reached with Nux, if the patient complains of fullness in the hypochondria and colicky pains, or by the Chionanthus, if there is evidence of irritation, with increased frequency of pulse and increased temperature.

Of the older means I may name the Compound Powder of Rhubarb, or the Compound Syrup, given until it gently moves the bowels, and then in smaller doses; and also the ordinary astringents, which are permissible in atonic diarrhœa, and stimulants like Compound Tincture of Cajeput, or Aromatic Tincture of Guiacum, if the atony is still more marked. The White Liquid Physic of the Dispensatory, if the discharges are of mucus with tenesmus, has been a very useful remedy.

As a local application when one is needed, we can not do better than take the cold pack for irritant diarrhœa, and the large sinapism for the atonic form. A Chloroform Liniment is a very good remedy when there is much pain.

CHOLERA MORBUS.

Cholera morbus is usually caused by acrid or irritating ingesta, or from long-continued torpor of the intestinal canal, the secretions being thereby retained, or from sudden changes of temperature, or arrest of secretion in the warm months of the year. It usually comes on in the summer and autumn and in some years more than in others.

SYMPTOMS.—It usually makes its appearance with pain about the umbilicus, and a feeling of nausea and prostration, and desire to evacuate the bowels. In a short time a diarrhœa sets in, the discharges being large, fluid, and to some extent feculent; usually, the nausea soon passes to vomiting, the attack coming on with the disposition to go to stool, and being long continued and attended with much straining. The pain in the bowels varies greatly, in some cases being extremely intense, at others but slight; the stools vary in character, in some cases yellow, or yellowish brown, and accompanied by

vomiting of bile, at others becoming lighter and lighter in color, until they seem nothing but water with whitish flocculi in it, like the rice-water discharges of Asiatic cholera. The first variety has taken the name of *bilious cholera*. In other cases, the bowels seem distended with gas, the patient passing considerable flatus at stool; this is termed *flatulent cholera*.

As the disease progresses, the patient's strength becomes exhausted, the vomiting or retching is more severe, the discharges from the bowels more frequent, and the pain severe and less easily borne. Now, the spasmodic action of the muscles of the lower extremities frequently ensue, and sometimes of the abdominal muscles; the cramps are exceedingly painful, and cause the patient to cry out with pain when they come on. The pulse is now small and fluent, the extremities cold, and the surface bathed in cold clammy perspiration. If not arrested, we find that the sufferer's strength is gradually exhausted, the mind wanders, and the patient dies.

DIAGNOSIS.—We recognize an attack of cholera morbus by the large fluid evacuations, pain in the bowels, great prostration at the commencement, nausea and vomiting, and cramps of the extremities, and of the abdominal walls.

PROGNOSIS.—The prognosis is favorable if taken in time, and properly treated; but if allowed to run until the system is much exhausted, it may prove fatal.

POST-MORTEM EXAMINATION.—No lesion accounting for death is found; the mucous membrane of the intestines seems blanched, excepting in cases of bilious cholera, when they are colored by bile; all the parts of the body shrunken, and the blood thick and grumous.

TREATMENT.—Though a severe disease, the treatment is the simplest possible. We administer at first the Compound Tincture of Cajeput, in doses of a teaspoonful every fifteen minutes, until the patient feels a sensation of agreeable warmth in the stomach, and then at less frequent intervals. This almost invariably checks the vomiting, and in a large majority of cases, the diarrhœa. Another very efficient remedy is the Aromatic Tincture of Guiacum, given in the same doses. If the nausea is not controlled by these means, we

may give an infusion of Peach bark, or of the Compound Powder of Rhubarb in small doses, or of Sub-nitrate of Bismuth, or Morphia: usually these means are not required.

If the Compound Tincture of Cajeput is not to be had, we will find that a tincture of any of the essential Oils, as of Cloves, Anise, Cinnamon, Erigeron, will answer the purpose. Without medicine, we would administer, black-pepper in doses of ten grains, with common salt in solution. Chloroform is an excellent remedy in many of these cases, in doses of fifteen to twenty drops, every half hour or oftener; it may be given in mucilage, with Compound Syrup of Rhubarb, or with water.

When remedies can not be tolerated by mouth, I prefer the use of small quantities of salt water by mouth, to check the nausea, and the use of enemas to arrest the diarrhœa. An enema of Tincture of Opium ℥ss, Tincture of Xanthoxylum ℥ss, repeated, will answer the purpose.

A sinapism to the epigastrium, and extended over the entire surface of the bowels, and followed by hot fomentations, afford marked relief in some cases. I prefer, however, the application of a towel wrung out of cold water. The hot Mustard foot-bath may be used with advantage, and in some cases the vapor bath. If the cramps are severe, friction with Mustard will give relief; or in worse cases, we may use the Compound Tincture of Cajeput. In very severe cases, the surface being cold, and the pulse hardly perceptible at the wrist, the patient may be wrapped in a blanket wrung out of hot Mustard-water.

If, as is sometimes the case, the patient is seen late, and life is almost extinct, I would prefer the hypodermic injection of Strychnia to all other means. The solution is used to the extent of one-twentieth or even one-tenth of a grain, over the sternum.

ASIATIC CHOLERA.

A disease having some semblance to cholera was partially described by the Greek physicians, which was probably our cholera morbus. Again, in 1689, Dellen described a disease very much like it.

It was not until from 1774 to 1790, that the disease we know as Asiatic cholera made its appearance, and was then confined

to India, though committing great ravages in the Bengal army. It is still believed by many that even this was cholera morbus. The descriptions are so imperfect that it is difficult to determine the character of the affection, and as it was so much milder than the cholera of the present century, we may consider it as not being a variety of this disease.

In August, 1817, the terrible disease known as Asiatic or spasmodic cholera made its appearance at Jessore, about a hundred miles north-east of Calcutta; it reached the latter place early in September, having destroyed thousands of the inhabitants in its course. It gradually passed over the Indian Peninsula, and had by 1823 extended itself in one direction, to the shores of the Caspian Sea, and in another as far as the Mediterranean and the borders of Russia; during this time it counted its victims by millions, nearly depopulating certain sections of country. In 1831, it again made its appearance in Russia, and extended over Europe, reaching England in October of this year. It appeared on this continent at Quebec, on the 10th of June, 1832, and at New York on the 24th of the same month. Its spread in the United States was rapid and its mortality fearful, and it did not entirely cease until 1834.

Its second appearance in this country, and the third choleraic pestilence that we have accounts of, occurred in 1849. As before, it spread rapidly, and the mortality was very great. It seemed to be confined to no age or condition, but attacked the population indiscriminately. It recurred in 1850, 1851, and in a sporadic form in 1852, having thus lasted four years.

The third appearanc of cholera in this country occurred in 1866. The first cases noticed were in June, but it only assumed the epidemic form in July, attaining its greatest intensity in August. As in other epidemics, we find it brought to our shores by ship, and distributed on the great lines of travel—river navigation and railroad—and never, I believe, where there was not direct communication. It reappeared in a few places in 1867, but not to any considerable extent, so that it was much less severe than in preceding epidemics.

CAUSES.*—The cause of cholera is not known. It is un-

* The reader will obtain a better idea of the nature of the cholera poison from the report of a continental cholera commission, held in Constantinople in 1866, composed of prominent physicians selected by the European governments

doubtedly a specific poison, reproducing itself in its progress, and gaining intensity and malignancy in proportion to the number affected.

It has been contended that the poison, whatever it might be, was atmospheric, and was propagated in the direction of the prevailing winds. This we are satisfied is not the case. On the contrary, it is an animal poison, developed in the person suffering from the disease, as the virus of small-pox or scarlet fever is developed. And to some extent it is propagated in the same way—by contact. I believe it is now generally admitted by the best observers that cholera is produced by contact with the choleric poison, and never in any other way. But zymotic poisons require certain conditions for their growth and propagation, the principal of which is, an atmosphere rendered impure by the decomposition of animal and vegetable matter, the first especially. Unless it finds this it ceases its progress and disappears just as certainly as that seed sown upon a macadamized road-bed will not produce a crop. The simile may be homely, but there is no doubt of its truth, as these conclusions are the result of centuries of observation, and coincide exactly with what is known of cholera in its several epidemic cycles. The cholera poison, whenever it becomes epidemic, must find the soil for its growth and action in an impure atmosphere. We find a striking instance of this in the manner of its transportation across the ocean. It more frequently appears in emigrant ships, and in the steerage, among the poorer and, from position, less cleanly passengers. Crowding always favors it; whilst in the same vessels, the cabin passengers, having plenty of room, good air, and means of personal cleanliness, escape.

Cholera originates in human filth, as is evidenced by the modes of life in the densely populated sections of India from which it starts, and those cities and countries from which it receives fresh impulse in its devastating progress. Its new birth, so to speak, among the filthy and poorly provided crowds of pilgrims at Mecca, and its destructive progress from thence to Constantinople, gathering increased force on its way, is sufficient evidence of the above propositions.

The mode of distribution of the choleraic poison is also clearly shown in this epidemic. Breaking out among the Pilgrims, it attended them in their journey *en masse*, and went

with the separate bands and individuals to their homes. Whilst on all the traversed routes, cholera made its appearance in the villages and country, as the Pilgrims passed through.

That the condition of a city or town, as regards cleanliness, influences the distribution and production of the choleraic poison was also clearly shown in the last epidemic. In New York city a rigid system of *policing*, general cleanliness, and care upon the part of the Board of Health, prevented a severe outbreak. It seemed as if, to use the common expression, "the disease was stamped out." Whenever a case occured, the person was at once taken charge of by the sanitary police, and a thorough disinfection followed. This care was extended to adjacent premises and continued for some days. In Cincinnati, also, an energetic Board of Health had the city pretty thoroughly cleaned, and many nuisances abated. The result was marked—the disease lasted a shorter time, and was not one-fourth as severe as in 1849. We may reasonably conclude that if the same means had been employed earlier, and the methods of disinfection pursued in New York adopted, we would have escaped as well as they. In St. Louis it was different; with an imperfect sanitary organization, without public support, they had neither cleanliness, an abatement of nuisances, nor disinfection. The result was a very large percentage of cases, and a fearful mortality.

It may be asked if cholera is thus propagated by a specific virus, generated in every person who has the disease, why is it that it is not eminently contagious? It is undoubtedly contagious to the degree that if a person who is susceptible to the cholera poison is exposed to it, he will contract the disease. If, therefore, all persons in a city where the cholera was prevailing as an epidemic were susceptible, the majority being exposed would have it. Fortunately, but a small percentage of a population has this susceptibility, and hence when these have been exhausted, the disease necessarily ceases. Thus we see persons in continued contact with cholera during an entire epidemic; caring for and nursing the sick, and burying the dead, without the slightest symptoms, whilst others, on the least exposure, contract it.

No plausible reason has been given why the cholera should be an epidemic in cycles of seventeen years. It is said that it is endemic in India, occurring to a greater or less extent in

the hot months every year. From the description given, however, we are led to believe that this more nearly resembles our sporadic cholera, or cholera morbus. It has been claimed by some to depend upon atmospheric changes, the result of planetary movements.

PATHOLOGY.—If the cause of cholera is a zymotic poison, we can readily understand its action upon the body. These causes of disease first influence the blood, impairing its vitality, its circulation, its reproduction, and its ability to support life in other parts.

In this case the influence seems to be first upon the sympathetic system of nerves, impairing every function controlled by them. We see it in the enfeebled circulation, and in the profluvia from the bowels, and sometimes from the skin. Following this, the lesion of the blood rapidly develops. There is a want of power to maintain the equilibrium of its constituents, and the water is permitted to flow away. In many cases the salts of the blood are deficient; in all there is a marked change in the structure and capacity of the red corpuscles, especially in their capacity as carriers of carbon and oxygen.

We may regard the profuse evacuations from the bowels as either the cause or the result of the influences above named. I believe they are the result, and in this I am supported by the best observers. Persons die of cholera without having had diarrhœa, and without the large amount of choleraic fluids in the intestines which post-mortem examination shows in some cases. And they present all other lesions, and the blood is found broken down, as in malignant typhus.

The decoloration of the dejections depend altogether on their excessive quantity, and the thinner and more copious they are, and the quicker they follow one another, the sooner they lose their fecal color and smell. Sometimes the whole contents of the intestine are discharged at once, and then the discharges show, even at the second evacuation, the distinguishing features of cholera stools. The lack of color in the dejections does not, however, indicate that the secretion and discharge of bile have ceased to take place, for if passed out in normal quantity, it could not give color to the enormous evacuations of cholera patients. The fluids thus discharged, prove on examination, to be deficient in albumen, and rich,

proportionately, in chloride of sodium and other salts. The white flakes floating in the serum consist chiefly of epithelium which has been detached from the intestinal walls. The stools contain, also, though not constantly, crystals of the triple-phosphates, remains of food, parasites, etc. Occasionally they are found to contain blood corpuscles, and the discharges are then richer in albumen, which has been poured out from the broken capillaries.

"The processes which are called into action in the intestine by the cholera poison are similar to those which occur in the skin on the application of a vesicating plaster. In both instances the protecting covering is lifted up by the copious secretion beneath it, and it depends solely upon the intensity of the processes, and the extent of surface denuded, whether sufficient fluid is extracted from the blood to induce paralysis of the heart and to endanger life. The thirst which patients suffer in the first stage of cholera, that of simple diarrhœa, is increased to a terrible intensity as soon as the colorless stools begin to be discharged. The symptom is easy of explanation, as it is experienced in all cases where water is drawn from the blood."

The vomiting, which is so persistent in many cases, occurs from the same cause. There is the free exudation from the blood vessels, and after a time, separation of the epithelium. The muscular action in emesis, as in the exalted peristaltic movement, is of the same character as the cramps of voluntary muscles, and is evidently from an irritation of the sympathetic and spinal systems of nerves. As we well know, such irritation occurs quite as frequently from debility as from exaltation, from an enfeebled as from an excited circulation. Funkes claims "That the sudden extraction of water really irritates the nerves, as can be proven by the most convincing experiments. Eckerd obtained contractions of the muscles of a frog's leg by bringing in contact with the nerves, substances having a strong affinity for water, as sugar and glycerine, also by drawing the fluid out with blotting paper, by putting it near strong sulphuric acid in a closed vessel, and by suddenly evaporating the water by passing a current of dry, hot air over it, or putting it under an air pump.

We may sum up the lesions as follows: 1st. An impairment of innervation, especially of the vegetative or sympathetic

nervous system. 2d. An impairment of the circulation, from defective innervation, and from a change in the constituents of the blood. 3d. A lesion of the blood composed of three parts: *a*, a loss of its fluids—*b*, a loss of its salts—*c*, a deterioration or sepis of its red globules and albumen—and 4th, a peculiar irritation of the gastro-intestinal mucous membrane.

POST-MORTEM EXAMINATION.—The appearance of the subject is characteristic—the peculiar shrunken condition of the soft tissues, contraction of the skin, and bluish discoloration, are rarely seen in any other disease. Rigor mortis is well marked, and the tissues seem to have an unusual hardness.

The heart has a bluish pallor, and its tissues are shrunken. The blood contained in it is thick, and has a peculiar dark tawny appearance. The red corpuscles, when examined by the microscope, are shrunken, crenated and pale; there is an increase of the colorless corpuscles, as they present a peculiar elongated or caudate shape. When the disease has continued for several days, the red corpuscles are found in every stage of dissolution.

The gastro-intestinal mucous membrane seems thickened, its epithelium raised in portions, at other points detached. In some cases it is peculiarly pallid, as if washed in water, or as if soaked in water for some days; in others it presents the same purplish discoloration of the skin; and when death has been very sudden, its vessels are distended with blood, and it presents a dark, ecchymosed condition.

The contents of the intestinal canal vary in different cases. When death has been sudden, the person having had but two or three discharges, the intestine contains large quantities of the peculiar *rice-water;* in most cases, they will contain some of this material. There is a remarkable absence of feculent material, which seems to have been washed away in the first discharges.

There are no other evidences of disease worthy of notice. In most cases, the tissues, lungs and brain present the characteristic bluish pallor. In rare cases, we find the lungs congested, and presenting on incision a marked ecchymosed condition.

SYMPTOMS.—The disease may be divided into three stages—a choleraic diarrhœa, cholera asphyxia, and cholera fever.

In observing a large number of cases, I have almost been forced to the conclusion that cholera is a specific fever, presenting its stage of incubation, its cold stage, and its stage of febrile reaction. It is true that in a large majority of cases, the disease terminates with the second stage, either fatally, or in a reaction that does not exceed the healthy standard. In this it resembles *congestive intermittent*. But in quite a considerable number of cases, especially those that recover, the third or febrile stage is well marked.

It must be borne in mind that the action of the cholera poison is intense and rapid, and we would not expect the same regularity in the first and third stages, as is also the case in congestive remittents.

The stage of incubation varies greatly in length, from but a few hours to days. It may be attended from the first with diarrhœa, or it may precede this for some time. In the latter case, the patient will complain of a feeling of prostration, with relaxed skin, scanty urine, or urine of low specific gravity, a pallid tongue with pasty white fur at its centre; the pulse is invariably smaller, and increased in frequency; the appetite is poor and digestion imperfect, with occasionally a sensation of weight and uneasiness in the bowels. I have seen such symptoms continue for from two to eight days before a choleraic diarrhœa appeared. And I do not know that I have ever witnessed these symptoms in a person, where cholera did not fully develop itself—unless appropriate treatment was adopted.

During an epidemic of cholera, diarrhœas are very prevalent; and though it must be admitted that any form of gastro-intestinal irritation or disease predisposes to an attack, yet they are not to be regarded as choleraic. To place the matter in a different light, any diarrhœa may become choleraic, but only by those persons being influenced by the peculiar epidemic poison.

It is of importance, then, that we be able to distinguish between an ordinary and a choleraic diarrhœa; for the first will require but the ordinary treatment (though it should always be arrested), whilst the second requires rest in the recumbent position, and a very careful treatment with specific remedies. We need not mention the symptoms of ordinary diarrhœa, it

will be sufficient to specify those peculiar to the diarrhœa of cholera.

With the first choleraic discharge, the patient will feel an unnatural prostration that is characteristic. It is not fear, or a nervous sensation, but a real exhaustion and loss of strength. An examination of the pulse will show an enfeebled circulation; the pulse being markedly small, easily compressed, and increased in frequency. The tongue will present a pallid appearance, with a white or pasty-white coat in its center. These symptoms are, as I believe, pathognomonic, and may be relied upon, whatever may be the character of the discharges. And I have seen them well marked, when there was but the inclination to go to stool, and where death resulted from cholera asphyxia within twenty-four hours.

The discharges at first are fæcal, though usually thin; as they continue they gradually lose color—dirty water—until at last, they present the characteristic rice-water appearance.

The duration of this choleraic diarrhœa varies in different cases; rarely of two or three days continuance, frequently not more than six to eight discharges, in less than as many hours. It is observed that the prostration increases with each discharge, and the pulse is more affected; the amount discharged by stool, as a general rule, determining the extent of the prostration, and the development of the second stage.

Thirst is a marked feature of cholera, developing in the first stage, and increasing as the disease progresses, until it becomes one of the most intolerable features of the disease. In the second stage, whatever the patient may take as drink is immediately rejected.

Cholera asphyxia is ushered in by increased frequency in the discharges, which have ceased to be feculent, and in a majority of cases are the characteristic rice-water. Great prostration attends them, and the pulse becomes very small and feeble.

As a general rule, nausea is developed with the choleraic diarrhœa, and with the development of the second stage vomiting is of frequent occurrence and persistent. The vomiting, as well as the diarrhœa, persists until the stage of collapse, when it ceases of its own accord. The surface now presents a peculiar appearance, the soft tissues are shrunken, and the skin covering the extremities is contracted and shriveled, and of

a bluish-leaden color. The extremities are also cold, and as the disease progresses it extends upward to the trunk. There is a want of elasticity in the skin, when pinched up it does not readily resume its position. As the disease progresses, the loss of tonicity is indicated by a free but unnatural clammy perspiration—sometimes as sticky and consistent as a glue-water. A very marked feature of this stage of cholera is the spasmodic contraction of the muscles, known as cramps. These usually make their appearance early in the second stage, and increasing in severity as the disease progresses, continue to the period of collapse. Sometimes they do not cease until death is far advanced. They commence in the muscles of the legs and thighs, in which they are most severe. Sometimes they extend upward and involve the psoæ and the muscles of the abdomen, and occasionally the muscles of the upper extremities and back. In one case I witnessed, these cramps assumed the form of true tetanic spasms, involving all the voluntary muscles.

The last part of the second stage has been known as the *stage of collapse*. The pulse has now left the wrist. The extremities are cold to the trunk, and the skin presents the peculiar purplish shrivelled appearance heretofore named. The features are shrunken and pinched, the eyes set back in the head, the lips livid, the ears and nose cold, the forehead cold and clammy, respiration difficult and irregular, the cutaneous veins distended and dark, and the mind evidently clouded and not appreciating the condition. Even with such symptoms life may be prolonged for several hours, the patient finally dying from asphyxia.

It will be noticed as characteristic of cholera, that no urine is passed in the second stage of the disease; indeed none is secreted, and the bladder is usually found empty on post mortem examination.

When reaction takes place from the second stage, the pulse comes back to the wrist, the surface becomes warm, the patient breathes with more ease, and is inclined to sleep. As we have noticed above, it may not go further than this. When it does, we will find the skin becoming dry and harsh; the pulse increased in frequency to 100 or even 120; the mouth is dry, and the coating of the tongue assumes a shade of brown, with brownish sordes on the teeth. The urine is scanty and very

high colored, if passed at all. As a general rule, there is marked irritation of the nervous system, the patient being restless and irritable, and unable to sleep.

These symptoms may give way in a few hours, secretion being established, and the patient convalescing without trouble. Or they may continue for several days, presenting the features of the nervous stage of a typhus fever. Or increasing, the disease may run rapidly to a fatal termination.

DIAGNOSIS.—The diagnosis of cholera is readily made, even in the first stage, if we get a correct appreciation of the symptoms. A pallid tongue, with white or pasty-white coat in the center; a pulse small, soft and increased in frequency; and a feeling of prostration and fullness, with uneasiness in the bowels, mark the stage of incubation.

The choleraic diarrhœa is indicated by a free fluid discharge, attended by an unnatural feeling of prostration, and the condition of pulse and tongue named above.

The stage of cholera asphyxia is announced by the peculiar bluish shriveled skin of the extremities; the pulse small or felt with difficulty, and coldness. The diarrhœal discharges being now frequent, and of dirty water, or the peculiar *rice water;* vomiting comes on early and being very persistent; cramps.

The stage of collapse, by the coldness; bluish lividity of the surface; absence of pulse at wrist; cold, clammy perspiration; difficult respiration; and dullness of the nervous system.

The third stage is marked by a frequent pulse, dry skin, scanty urine, increased temperature, and irritation of the nervous system.

PROGNOSIS.—Cholera varies very greatly in intensity and malignancy in different seasons and in different places. I believe we may state that it is always most fatal on its first appearance, and that, as a general rule, it is less severe as the epidemic progresses; and that in its reappearance in succeeding years, it is milder each season. We have reason to conclude, also, that to some extent, it will be mild or malignant in proportion to the cleanliness and care of a people, being severe and fatal where there is filth, bad drainage, bad ventilation, crowding, and bad food.

Treatment will be most successful in the first stage, will yield moderately good results in the first part of the second

stage, and will prove of but little benefit in the stage of collapse. I am further satisfied that the statistics of treatment in this country are of no value. That when physicians have been honest, and intended to tell the truth, an excited imagination has made cases of cholera out of every diarrhœa or form of intestinal disturbance and, even out of the nervousness that is so common during an epidemic.

Care in the first stage will give a mortality of less than five per cent.; in the first part of the second stage, of twenty to twenty-five per cent.; in the stage of collapse, ninety per cent.

PROPHYLAXIS.—Cleanliness is the most efficient prophylactic; such cleanliness as entirely removes all animal and vegetable matter that would undergo rapid or *slow* decomposition, and not such as would hide it, is what is requisite. But it does not do to wait until the epidemic is prevailing to do this cleaning. It should be done months, or at least weeks before, and always before the hot weather. The removal of filth during an epidemic must always increase the disease, as it continually exposes fresh surface to the action of the air, thus favoring decomposition and rendering the atmosphere impure. At this time let there be a free use of disinfectants, bringing them in contact with the material, and diffusing them through the air, to arrest the process of decomposition and destroy its results.

Of the disinfectants, Carbolic Acid is probably the most efficient. It may be used in any of its forms; the impure, being the cheapest, is most usually employed. The black, tarry material, sometimes sold for Carbolic Acid, is not to be recommended. The Chlorides stand next in importance, and are extensively employed; the Chlorinated Soda, and the Chloride of Lime are the common preparations. For the disinfection of privies, sewers, etc., Sulphate of Iron has been employed, and is highly recommended.

All influences that depress the nervous system predispose to cholera. It matters not what it may be, whether long continued mental exertion, loss of rest, the over excitement of alcoholic drinks, or the more common depression of fear. With regular habits, moderate health, and a contented mind, there need be little fear of the disease. No change of habits is necessary, providing the person has led a temperate life. The

food should be plenty and good; the moderate use of vegetables and fruits is not to be condemned, but rather recommended, as experience testifies to their healthfulness. Medicines should be avoided, except there be special need for them; and persons not in the habit of using alcoholic stimulants, should not employ them to ward off cholera, or relieve them from the fear of the disease. But it is well that a community be impressed with the necessity of prompt attention to diarrhœas, and it is well that every family have some approved remedy for this purpose, that can be employed at once.

TREATMENT.—The treatment for the forming stage of the disease, diarrhœa not being developed, will vary in different cases. When the circulation is feeble, and the skin relaxed, I prefer Aconite with Ipecacuanha in the usual doses, alternated with tincture of Nux Vomica in the proportion of gtt. x. to ℥iv. of water, a teaspoonful every two or three hours.

If the tongue is pallid, and coated with a pasty-white coat, the Sulphite of Soda may be given in doses of ten grains every two hours, or in place of this, the Bicarbonate of Soda, or common salt, may be used. But if the tongue is red, somewhat dusky, or there is a tinge of brown in the coating, the mineral acids will be preferable.

A *choleraic diarrhœa* requires to be promptly arrested. The patient should assume the recumbent position, and keep entirely quiet until the diarrhœa is arrested, and the sense of prostration has passed away. This is imperative. The local application to the abdomen may be either a large sinapism, or a cold pack as the physician may prefer; or in many, commence with the first, and then follow with the cold application.

The remedies will vary in different cases, and with different practitioners. There is a very large list to select from, and we may employ the different classes of stimulants, astringents, narcotics, or special remedies.

Among the first we have the essential oils, all of which have been employed in the form of Tincture, in cholera. The Compound Tincture of Cajeput is preferred by our school, and is probably as good as any combination that can be made. Whatever stimulant is selected, it is freely used, and continued until the diarrhœa is arrested. In some cases

it is combined with an astringent, in others with a preparation of Opium.

Chloroform has been employed in this case with advantage, in doses of from ten to forty drops. Chlorodyne* has also been extensively used, and is probably as good a remedy as can be placed in the family. Camphor has been thought by some to be specific; the Tincture is given in doses of from ten to fifteen drops.

The majority of the vegetable astringents have been employed to arrest the diarrhœa of cholera. Some combine them with stimulants, others with narcotics, but the results have not been very flattering.

Opium has been extensively employed for this purpose, and sometimes with excellent results. A pill of Opium and Camphor, half grain to one grain each, will probably be the best form of the remedy, and may be given as often as every hour. It has been recommended to add one grain of Leptandrin to each dose, though I doubt the advantage of it. I have never used Opium by mouth, in cholera, preferring its action by hypodermic injection of Morphia.

Of the many remedies I have employed for this diarrhœa, nothing has given so much satisfaction as Strychnia. I prescribe it in the following form:

℞ Strychnia, grs. ½ to gr. j.
Sub-Nitrate of Bismuth, ʒj. M.

Divide in fifteen powders, and give one every half hour or hour, until the feeling of prostration is removed, and the diarrhœa checked.

When the stomach is very sensitive to medicine, or there is a tendency to nausea and vomiting, we will have to employ remedies by mouth with great care. Indeed, in these cases I would never run any risk of exciting vomiting, preferring that the diarrhœa should continue, until it could be arrested by other means. I have had excellent success in these cases by administering salt water in moderate quantities, and the

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* ℞ Sulphate of Morphia, grs. lxiv.
Alcohol, 95 per cent. fʒij.
Chloroform Purif., fʒvj.
Sulphuric Acid, q. s.
Extract of Cannabis Indica, (Allen's) ʒss.
Oleoresin of Capsicum, gtts. xij.
Hydrocyanic Acid, (Scheele's) gtts. xcvj. M.

use of Opium with a stimulant as an enema. The form I prefer for the last is:

℞ Tincture of Opium, ʒss.
Tincture of Xanthoxylum, ʒss. M.

In place of the salt water, when it was distasteful, especially when the mucous membranes were reddened, I here use the White Liquid Physic,* in doses of a teaspoonful every fifteen to thirty minutes, until the patient was relieved. Afterwards, less frequently. The Tincture of Nux Vomica may also be employed in this case with advantage, using it in small doses, frequently repeated.

In the treatment of *cholera asphyxia*, the first object is evidently the relief of gastric irritation; for so long as nausea and vomiting continues, no other remedies can be of any use, as they will be ejected. For this purpose I employ cold salt water packs over the abdomen, though some use the large sinapism in preference. The patient should be kept in the recumbent position, and not allowed to get up to stool—a bed-pan or cloths being employed. Dry heat should be applied to the extremities to as great an extent as possible, the patient being covered with blankets.

In some of the milder cases, stimulants or aromatics may be used to arrest the nausea. Thus, as we have already seen, the Compound Tincture of Cajeput will stop the vomiting in cholera morbus, and continued will arrest the diarrhœa. Some have depended upon the aromatic waters, but I do not think much of them.

The remedies that I have employed to best advantage are the following: A teaspoonful of salt in a glass of water, and given in small quantities frequently, has served the best purpose. The White Liquid Physic has proven valuable in the class of cases heretofore named. The Tincture of Nux Vomica or a Solution of Strychnia, will also accomplish the object in many cases, and may be used alone or in combination with either of the other means.

I do not attempt to give remedies for the arrest of the diarrhœa so long as the vomiting continues, unless it is a stimulant which answers this purpose, or Strychnia. I have found it better to use enemas for this purpose, the preparation

* ℞ Sulphate of Soda, ʒviij.
Water, Ojss.
Nitric and Muriatic Acids, aa ʒj. M.

of Opium and Xanthoxylum heretofore named being preferred.

Soda, in its various preparations, stands first in the list of curative means, and we will generally employ common salt in preference to any other. Strychnia undoubtedly stands second in the list of remedies, being the most powerful stimulant and tonic we ever employ.

Cramps of the muscles may be relieved by brisk rubbing, but this should always be done under the cover. A local application of Chloroform or Compound Tincture of Cajeput, to the affected part, will frequently give great relief. The simplest, as well as the most effectual plan is, to give the great toe a sudden twist with the hand.

Let it be recollected that the patient *must* keep the recumbent position, *must not* get up to stool, and *must* be warmly covered in bed, with the application of dry heat.

Though the thirst is excessive, yet water can not be given with safety. Even after the vomiting is checked, we will find that but a small portion of fluid will cause it to recur. Small portions of salt-water, frequently repeated, is the best means of supplying fluid to the blood.

I feel confident that the loss of fluids might be replaced to some extent by subcutaneous injection, and for this purpose had prepared a four ounce hypodermic syringe, had cholera reappeared in 1867. It was tried to some extent in '66, with good results. Absorption from the cellular tissue is very rapid, even in an advanced stage of cholera, and a weak solution of salt would be readily taken up. It might be used at several points, and as much as eight to twelve ounces introduced in the course of an hour.

The stage of *collapse* will be treated by the administration of salt water in such quantities as it can be borne by the stomach; by the assiduous use of dry heat, and such stimulants as may be deemed applicable; and by the hypodermic use of strychnia in large doses. Other than these three means, I know of none that is likely to prove of any use. Persons will, in rare cases, recover from this stage, without medicine, as I have seen in two instances.

Convalescence must be managed with great care. Quiet in bed is the only course of safety. The desire for drink must be supplied gradually and in small quantity, whilst the food

should be of the most bland description and taken sparingly. I have generally put the patient upon the use of Aconite in small doses, with Belladonna if there was any tendency to congestion. If the tongue becomes dry, and the mucous membranes are dusky-red, as is frequently the case in the third stage, we give the dilute Muriatic Acid.

Small doses of Strychnia may be continued internally, or in its stead we may give the Tincture of Nux Vomica. Quinine, when needed, is best used in the form of inunction, or applied in solution in Brandy, with brisk friction.

In some cases, small portions of Brandy may be given with the drink, to keep up the strength and aid convalescence. We are governed here by the same rules that governed its administration in fever. If the pulse increases in volume, with a better circulation of blood, better secretion, and better innervation, let it be continued; but if the influence is the reverse, let it be stopped.

CHOLERA INFANTUM.

(See Diseases of Children, p. 288 to 296.)

TABES MESENTERICA.

Tuberculous disease of the intestinal canal is most usually met with in childhood, though occasional cases will be seen even up to the age of twenty-five. It occurs only in those constitutions which we have before referred to as being tuberculous, and where, if the irritation had been of the lungs instead of the bowels, it would have been phthisis.

The pathology of the disease is well described by Habershon: "In disease of the mesenteric glands, a low organized product is effused into the glands themselves, probably because the chyliferous ducts become entirely obliterated, and the structure of the gland destroyed. Their extensive disease prevents the absorption of chyle into the system. The glands share the disease in various stages and gradations; in some, but scanty abnormal product is found, in others the whole gland is destroyed and very much enlarged, constituting a whitish mass, the size of a pigeon's or hen's egg. The effused product consists of granular blastema, and imperfectly develop-

ed cells. The swollen and injected state of the glands less affected, appears to indicate that inflammation or hyperæmia is associated with the disease. The increase takes place by additions to the periphery of that already deposited, and degeneration occurs in the center from the scanty supply of nourishment afforded to the central part. The gland sometimes appears to be enveloped by a firm, fibrinous cyst, which consists of inflammatory product better organized, having assumed the character of fibrous tissue, while the center consists of calcareous deposit, the albuminous portion having been absorbed, and the organic only left. Degeneration of another character, however, takes place in the effused product; it is converted into a mass of granular molecules and highly refracting particles, constituting small, cheesy tubercles of a yellow color, or a softened and semi-diffluent mass. The lacteals between the glands become enlarged and distended with similar strumous product, or we can trace the distended ducts to the intestine, where they ramify on its surface, and at this part we generally find a cluster of tubercles and ulceration of the mucous membrane."

SYMPTOMS.—In children it is usually preceded by diarrhœa and gradually increasing prostration. The appetite is usually good, sometimes ravenous, but the patient receives no apparent benefit. The bowels are sometimes tumid, hot and tender, at others very much shrunken; the evacuations consisting of a thin mucus, greenish, and frequently resembling the washings of meat. The countenance is contracted and pinched, the eyes set far back in the head, and the skin peculiarly dry, wrinkled, and sallow, giving the child a prematurely aged appearance. It is restless, irritable and fretful, and presents many of the symptoms of cholera infantum.

In the adult there may or may not be diarrhœa, frequently an alternation of diarrhœa and constipation, and sometimes severe pain. There is a marked marasmus, increasing day by day, though the appetite may be good, and the digestion seemingly well performed. The patient has an anxious expression of countenance, a sallow, wrinkled skin, contracted abdomen, and is uneasy, restless, and irritable. In the latter stage, diarrhœa sometimes sets in, and carries the patient off quickly, or disease of the brain or lungs comes on to assist the tabes.

In both cases the enlarged mesenteric glands can frequently be felt through the abdominal wall.

DIAGNOSIS.—Tabes mesenterica is diagnosed with difficulty. The principal symptoms leading us to believe in strumous disease of the mesentery are: the continuance of a good appetite, and seemingly good digestion, with continually increasing loss of strength, and flesh, and the evidence of disordered bowels; and in the latter stages feeling the enlarged mesenteric glands through the abdominal walls. It will be seen that our diagnosis will have to be made principally by exclusion, a very common method, and possibly more correct than by direct symptoms.

PROGNOSIS.—The prognosis in well-marked cases of this disease is exceedingly unfavorable, as much so as any disease we are called to treat. In the earlier stages its progress may be arrested, as it may also occasionally in the latter.

TREATMENT.—A tonic and restorative treatment would seem to offer the best results in these cases. Yet we find that it does not prove so serviceable as some other means. The tincture of muriate of iron in small doses, with glycerine, may be employed, as in other cases attended with feeble digestion and nutrition, and the inunction of Quinine may be used quite freely.

Small doses of Ipecacuanha alternated with Aconite, may be employed to relieve the irritation of the bowels, and check diarrhœa, when it is present. Or, in place of these, we may use the Extract of Hamamelis (Pond's), which I think very highly of. The dose will be about ten drops four times a day.

In one case I obtained excellent results from the use of the Collinsonia, alternated with the Hamamelis. For a child two years old the proportion of the first would be as follows:

℞ Tincture of Collinsonia (Merrell's) ℥ij.
Simple Syrup ʒ j. M.

A teaspoonful four times a day.

The use of the Alnus, Rumex, Scrophularia, and others of our vegetable alteratives, has been recommended; but I think they will not prove so serviceable as the means above named. The ointment of Uvedalia may be thought of as an application to the abdomen.

ILEUS.

Obstruction of the bowels is not of very frequent occurrence. It may arise from various causes, among which may be enumerated: "1, From bands of adhesion, the result of inflammatory action; 2, From congenital intestinal pouch becoming adherent; 3, From the appendix cæci assuming a fixed and adherent position; 4, From the twisting of the intestine upon its own axis, upon the mesentery, or upon other coils of intestine; 5, From tumors developed in the mesentery leading to constriction; 6, From intussusception; 7, From cancerous disease of the intestine; 8, From contraction of cicatrices, as after dysentery or fever; 9, From enteritis or peritonitis; 10, From impaction of fæces, or of foreign bodies, as gall-stones, etc.; 11, Obscure forms of hernia, as into the obturator foramen, etc.; 12, Prolapus-ani and inflamed hemorrhoids; 13, Abdominal or pelvic tumors."—(Habershon). Some of these causes are readily determined, and may be excluded from the subject, as enteritis, peritonitis, prolapsus-ani, inflamed hemorrhoids and abdominal or pelvic tumors. Again, it has been contended by some authors that all the symptoms found in these cases may be produced by a spasmodic state of the intestine, no strangulation or cause of obstruction being detected after death.

Symptoms.—In the early stage of the affection, the patient is obstinately constipated, and complains of an uneasy sensation at the part where the obstruction exists, being sometimes able to place the hand directly on the part. In a longer or shorter time he complains of a twisting or violent pain about the umbilicus, without tenderness on pressure—in fact, frequently relieved by it. Nausea comes on, with frequent retchings, vomiting of the contents of the stomach, then of bile, and finally of feculent matters. The abdomen becomes very much distended with gas, is tense and tender, the countenance shrunk and anxious, the extremities cold, with frequently cold, clammy perspiration, hiccough, and gradual failure of vital power.

The disease pursues a variable course, sometimes the suffering is extreme at the commencement, and all the worst symptoms above named appear in twenty-four or forty-eight hours; in others, the disease will not terminate fatally under six or

seven days; and in some cases, the large intestine being the seat of the obstruction, it may last for three or four weeks.

DIAGNOSIS.— Much difficulty is experienced in detecting the character of these cases, as the symptoms at first are none of them distinctive. If of sudden occurrence, as when the patient feels a sudden, severe colicky pain when straining at stool, becoming more and more severe, and attended with tenesmus and constant desire to go to stool, but unable to pass anything from the bowels, we have a tolerably plain case. In other cases, we are led to believe that there is intestinal obstruction by the continuance of the constipation, sufficient means having been used for its removal; by the fixed location of the severe pain, and the constant nausea and marked prostration. At a later stage, the continuance of all the above symptoms, and the appearance of stercoraceous vomiting is positive evidence. If the patient has had peritonitis, we have reasonable ground to conclude that it results from adhesions. Tumors are likely to have given rise to previous uneasiness, and to be so developed as to be diagnosed on examination. Cancer will have been of long duration, and given rise to disturbance of the bowels, and the ileus of slow formation. Impaction of fæces may sometimes be determined by the hard, irregular tumor that presents, and its sudden appearance. Obscure hernia by its location and the circumscribed character of the pain.

PROGNOSIS.—The prognosis in these affections is unfavorable, though many recover. If there is continued increase in the severity of the symptoms, the nausea and vomiting being intense and persistent, and especially of stercoreaceous material, with great prostration and anxiety, the prospect is very poor. If, however, the bowels are moved, the pain being mitigated, the patient will recover. In some cases of intussusception, when the symptoms are very severe, the patient still retains his strength, the nausea abates somewhat, and after two, three, or four weeks of suffering, a portion of the intussuscepted bowel is discharged, and the patient recovers. So many of these cases have occurred, that we would not despair, even after having employed all the means recommended without success, for nature will sometimes step in, and thus save the life of the person.

TREATMENT.—In almost all cases purgatives will have been thoroughly tried, before we are called, so that we will not have to regret the giving them as one of our errors; still, cases will undoubtedly occur, in which symptoms will be so obscure that we will administer them ourselves, to the great detriment of the patient. In all cases, the administration of Opium and an infusion of Dioscorea, in sufficient quantity to relieve the pain, will be all the internal medicine usually of use. The nausea must be quieted as much as possible, by the use of the means heretofore named: an infusion of Compound Powder of Rhubarb, Peach bark, Sub-nitrate of Bismuth, Ice, Morphia, etc., and the employment of counter-irritation to the epigastrium. The association of Chloroform, Sulphuric Æther, or Tincture of Gelseminum will be advantageous in some cases, the two first especially in cases of tympanitis.

To relieve the obstruction, large quantities of fluid—thin gruel is as good as anything—should be thrown up the bowel with a pump syringe. As much as from half to one gallon may be thus used, completely distending the large intestine. This may be repeated several times per day; or, what is deemed even better than this, the introduction of air by means of an air-pump, until the large intestine was distended to its full extent. Change of position is sometimes advantageous, at others hurtful, and the same may be said of the sudden application of cold water. Great relief may sometimes be given by the use of the hot sitz bath, and occasionally by the use of hot fomentations to the abdomen.

The question of surgical interference in bad cases, becomes one of anxious consideration, as in some cases the obstruction is of such character as that it might thus be relieved, with the greatest facility. Mr. Hilton has resorted to this mode of relief with success, but others have signally failed. When it can be determined that the obstruction is of the large intestine, the operation for *artificial anus*, offers the best chance for success. If the means first named does not prove successful, we endeavor to prolong the patient's life, hoping that nature will step in and remove the obstruction. We thus use stimulants in small quantities, and nutritious enemata, and such means as will relieve the sufferings of the patient as much as posible.

COLIC.

The general features of colic are griping pains in the bowels of a more or less constant character, constipation, and absence of inflammatory or febrile symptoms. It may be dependent upon various causes, as acrid ingesta, irritating secretions, gaseous accumulations, spasmodic contraction of the muscular coat from irritation of the sympathetic and spinal nervous systems, structural disease of the intestinal canal, and disease of the blood. We may describe the disease as consisting of three forms—common or wind colic, bilious colic, and colica pictonum or lead colic.

SYMPTOMS.—The *common* form of colic is produced most frequently from irritating ingesta, or acrid secretions. It commences with severe griping pain in the region of the umbilicus, though somewhat wandering in its character, changing its position from one side to the other, and from above to the lower portions of the abdomen. It is not constant but remittent, giving the patient a moment's ease, then recurring with increased severity. In some cases it seems to be confined to the stomach, as if it was contracted upon itself (cramps of the stomach), but more frequently involving the entire intestinal canal.

There is no tenderness on pressure, but frequently relief is afforded by it; the skin is cool, the pulse regular and not increased in frequency, and there are no symptoms of febrile action. The bowels are usually constipated, though if produced by irritant ingesta, there may be watery evacuations from the bowels.

It generally lasts but a few hours, though if not properly treated, it sometimes becomes very severe.

TREATMENT.—The treatment is simple: if the pain is confined principally to the stomach, or upper portion of the abdomen, and we have the evidence that the patient has been lately eating unripe fruit or other articles difficult of digestion, we would immediately give an emetic. In other cases we treat it with Nux Vomica, gtt. v. of the tincture to ℥iv. of water, a teaspoonful every fifteen to thirty minutes. The tincture of Dioscorea may be added to this, if there is tenderness on pressure.

In other cases, the most effectual and quickest remedy is, the Compound Powder of Jalap and Senna in doses of twenty grains every hour, until the pain is relieved; or, if the patient objects to taking it by the mouth, two drachms mixed with warm water, and used as an enema, will answer the purpose admirably. In lieu of this, almost any of the Aromatics may be employed; as equal parts of Compound Tincture of Lavender, and Syrup of Rhubarb and Potash; or, a Tincture of the Oil of Anise, of Peppermint, or of Cajeput; or, a teaspoonful of Ground Pepper, Tincture of Camphor, etc. Chloroform is an excellent remedy in this case, given in doses of ten to thirty drops. A sinapism applied to the abdomen frequently gives relief, though I prefer a towel wrung out of cold water.

BILIOUS COLIC.

Bilious colic is doubtless dependent upon an irritation of the mucous membrane of the intestinal canal, with vitiated secretions, which irritation induces spasmodic contraction of the muscular coat. We have to determine whether the irritation is dependent upon the acrid character of the secretions, or whether the change in the secretions is not owing to the irritation of the mucous membrane. The name bilious is derived from the fact that the vomiting that so generally attends the disease, is to some considerable extent mixed with bile.

Symptoms.—Very frequently the attack of colic is preceded by symptoms of irritation and imperfect digestion. The tongue has been coated at the base, the mouth is clammy and has a bad taste, the head feels bad, the skin dry, bowels constipated, and more or less languor of the system.

When the disease commences, there are severe griping pains in the bowels, more severe than in the preceding case, and not exhibiting the same remissions. The abdomen is more or less tumid, with marked tension or hardness; pressure elicits some tenderness, but this usually passes off if it is continued, when it frequently gives relief. Nausea and vomiting frequently make their appearance in the early part of the disease, though sometimes not until the last. The retchings are violent and painful, and often the contents of the stomach as

thrown up, consist of a greenish, or yellowish, acrid bilious material. The pulse is slightly accelerated and full from the commencement, and the patient nervous and irritable.

As the disease progresses the pain becomes more severe, and is not unfrequently attended with a desire to evacuate the bowels, which is found to be impossible, or if anything passes it is small in quantity and scybalous. The abdomen becomes harder and pressure causes pain, the pulse is accelerated, the countenance has an anxious expression, the skin is harsh, the extremities cold, and the patient extremely restless. The strength gradually gives way to the severe suffering, the disease lasting from one to three or four, or in some cases, seven or eight days.

DIAGNOSIS.—Bilious colic is diagnosed by the intensity and continuance of the pain, the hard and tumid abdomen, nausea and vomiting, acceleration of pulse, and harsh, dry skin.

PROGNOSIS.—Though attended with much suffering, yet a favorable result may be looked for in a large majority of cases. A subsidence of the pain, the bowels being soon moved, are the most favorable indications.

POST-MORTEM EXAMINATION.—No lesion has been found to account for the severity of the disease. In some cases there was slight congestion of the intestines, with evidence of spasmodic contraction, absence of any material within this portion, or sometimes masses of scybalous fæces, almost or quite blocking up the cavity.

TREATMENT.—We do not employ a great many remedies in this disease, but what we do use, seems to answer the purpose well. If the Dioscorea could be obtained, I should want no other medicine; make a strong infusion, and give it freely, or the tincture may be used, until the pain ceases. If this could not be obtained, I would strongly recommend the Compound Powder of Jalap and Senna, in doses of ten grains, every fifteen minutes, until the bowels are moved. There is no fear of giving too much as it will be rejected by the stomach, a considerable portion being thrown up at each time, when the nausea is great. To assist its action in severe cases, I use the same agent as an enema, mixed with warm water.

Other remedies may be used for temporary relief. Chloroform with Glycerin will frequently quiet the pain for the time being and may be used for this purpose, whilst we are waiting for the action of other medicines, as may also some of the aromatic stimulants. The Epilobium in infusion has been very highly recommended, but I have not yet had an opportunity to try it.

The warm bath, or the vapor bath, give great relief, and materially assist the action of the other remedies. Or fomentations of hops or bitter herbs, may be employed in place of the bath. Cups, either dry or wet, are sometimes useful, but I have never seen any good results from other means of counter-irritation, except over the epigastrium, to relieve vomiting.

If the nausea and vomiting are so persistent as to prevent the employment of the remedies first named to advantage, I would advise the use of an emetic of the Compound Powder of Lobelia, with copious draughts of a warm infusion of Penny-royal or Sage, and given to produce relaxation and copious emesis. If inflammation of the bowels results, as is sometimes the case, it should be treated by the use of special sedatives, Dioscorea, alkaline diuretics, cups to the abdomen, and the thorough use of the warm bath.

COLICA PICTONUM.

Lead colic most generally occurs in persons who work in lead, as workmen in paint manufactories, painters, plumbers, type founders. etc.,and is the result of a continued absorption of the mineral for a considerable period of time. Some persons are peculiarly susceptible to the poison of lead, and in such cases we may find it caused by sleeping in a recently painted room, the medicinal administration of lead, and by using water passing through lead pipes.

Cases of chronic lead poisoning are observed in which there is no derangement of the bowels, the patient is very sallow and anæmic, muscular development diminished, the appetite and digestion impaired, and more or less paralysis, the most common form of which is a peculiar form of dropping of the wrists. The most distinctive feature in all cases of lead poisoning is a blue line on the edges of the gums, and a peculiar

dropping of the wrists, which may be taken as a guarantee of lead absorption.

SYMPTOMS.—Lead colic commences with an obscure pain in the abdomen, the bowels being costive and hard, and sometimes knotted to the touch. As it continues it becomes so severe that the patient screams with agony; at first confined to the region above the umbilicus, and seeming to shoot from one hypochondria to the other, it gradually extends until it affects the entire abdomen. In the severe cases it extends to the back, the upper extremities, the hips, thighs and legs, until it sometimes seems that no part of the body is free from pain. The abdominal walls are tense and hard, sometimes knotted, and the umbilicus is drawn inwards. The bowels are not tender to pressure, neither does it alleviate the pain, as in some other forms of colic. The patient is frequently troubled with nausea and vomiting, the material thrown off the stomach being a slimy fluid more or less mixed with acrid bile. The tongue is pale, broad and flabby, and its movements controlled with difficulty, the skin soft and moist, the pulse not at first affected, but when the disease is long-continued and severe it becomes soft, feeble and increased in frequency. The bowels are obstinately constipated; if anything passes, it is in hard scybalous masses, with a brownish water; the sphincters seem to be sometimes so contracted that neither urine or fæces can be passed, and it is with the greatest difficulty that we can introduce the clyster pipe. The duration of the disease is variable, terminating, in a majority of cases between the second and thirtenth day of the treatmeent.

DIAGNOSIS.—The diagnosis is in some cases difficult, though in others the symptoms above named are so well defined as not to be mistaken. The fact of the patient being a worker in lead, or having been exposed to it in an unusual manner, is an aid to diagnosis. If there is the blue and livid line on the gums, or a dropping of the wrists, we are assured we have a case of lead poisoning.

PROGNOSIS.—The prognosis is favorable in a large majority of cases, though the disease may last for some time.

POST-MORTEM EXAMINATION.—Lead colic generally proves fatal from its complications, the most frequent being of the

nervous system. Most authors claim that no lesion of the intestinal canal can be detected on dissection, the bowels being perfectly natural throughout, though the muscular coat is pale and wasted. One, Dr. Hazen, claims that contraction of the colon and cæcum existed in all cases that he examined.

TREATMENT.—The first object of treatment is to mitigate the intense pain, and open the bowels, after which means to remove the lead should be immediately used. Among the most efficient means for the relief of pain, is the administration of Chloroform in doses of from twenty to thirty drops every half hour or hour; it may be administered in mucilage, water, rectified spirits, or, what is preferable to all, Glycerin. I usually order it in the following manner:

℞ Chloroform. ʒss.
Glycerin. ʒij. M.

Shake well, and give a teaspoonful as often as required. If this can not be obtained, or fails, Opium, Belladonna, or Hyoscyamus may be used in full doses in its stead. With this, Alum in doses of ten grains every two hours, or Iodide of Potassium, in doses of one or two grains every hour, as antidotes to the poison.

To open the bowels, I prefer the use of enemata of Compound Powder of Jalap and Senna, or the same may be used internally, or a pill containing from half to one drop of Croton Oil, is recommended in bad cases; if the last were given, I should make the mass of Extract of Hyoscyamus, two to five grains. Sulphate of Magnesia has been used for the same purpose, and is highly recommended, as is also the White Liquid Physic heretofore named.

As a local application, Chloroform applied to the abdomen is one of the most efficient; in using it, drop fifteen or twenty drops on a wet cloth, and apply for a few minutes and repeat. Hot fomentations have been used, but without much benefit, as has also the cold water bandage. A cataplasm of Tobacco is highly recommended, and I have no doubt will prove useful.

I prefer the warm bath to other means. If there are no facilities for giving an entire bath, a large wash tub filled with water as hot as can be borne, the patient sitting in it, answers a good purpose. A bath containing the Sulphide of Potassium, in the proportion of four ounces to thirty gallons of water, is

recommended for its specific influence. The use of Electricity I know to be beneficial, not only in relieving the pain, but, in the form of a galvanic bath, in removing the metal from the system. In the anorexia and slight attacks of colic that are frequently met with in painters and other lead workers, I have found nothing better than the Sulphate of Soda in small doses. I usually order a solution of ℥ss. to ℥iv. of water, to be taken three times a day, in doses of a tablespoonful.

DISEASE OF THE CÆCUM.

The cæcum is, to some extent, beyond the direct current of the intestinal contents, and may thus suffer with derangements different from other portions. Situated below the ileo-cæcal valve, it would be more likely to suffer from impaction of fæces, and on account of its dependent position, is likely to be the depot for foreign substances.

Abnormal distension is sometimes the consequence of obstruction of the colon, but more frequently of an atony of the cæcum itself.

The distension may be of hardened or impact fæces, or of fæces and of flatus. Pain in the right iliac region of a colicky nature, and sometimes quite severe, is the result, and from pressure on the genito-crural and dorsal nerves, there is occasionally quite severe pain in the hip, in the groin, testicles, and sometimes down the thigh in the course of the saphenous nerves. These pains may or may not be constant, and sometimes last for several days. They are relieved by the employment of cathartics that act upon the lower intestines, as the Aloetic or Anti-dyspeptic Pill.

INFLAMMATION.—Inflammation of the cæcum may result from the lodgement of irritating material within it, or from its impaction with fæces. The symptoms are, at first, a dull obscure pain and weight in the right iliac region, with derangement of the bowels, generally constipation, though sometimes diarrhœa.

As the disease continues, the pain becomes more severe, is continuous, and increased by pressure; frequently it radiates to the hip, groin and testicle. The appetite is now much impaired, the tongue coated, the skin dry and harsh, and the

pulse excited. A tumor is now generally perceptible on examination, though the tenderness is so great, that it is difficult to make an accurate one. Three or four days pass off in this way; there is sometimes a general peritonitis with acute tenderness and lancinating pain, anxious countenance, cold extremities, a feeble and frequent pulse, and death in a short time. Or, the inflammation will result in the deposit of plastic lymph, agglutinating the parts together, suppuration occurs, finally opening on the surface, and discharging both the contents of the abscess and the bowels. In these cases the disease may be of many days, or even weeks duration, and attended with symptoms of great prostration.

Diagnosis.—The diagnosis is very difficult, but we are guided by the location of the disease, the sudden appearance of the enlargement, the character of the pain, and the disturbance of the function of the bowels.

Prognosis.—The prognosis is favorable in most cases, as the inflammation may be removed with considerable ease, in the early stage of the affection. If peritonitis results, or there is great distension from impaction of hardened fæces, the prognosis is unfavorable.

Treatment.—The administration of the special sedatives, with a diaphoretic, as the Compound Powder of Ipecac and Opium, should be continued from the commencement until the inflammation has subsided. Cups or Leeches should be applied to the seat of pain, and followed by hot fomentations; or if these should seem to increase the pain, cold applications. Drastic purgatives should be avoided, as they would increase the disease by the violent action they would set up. In their stead enemas of soap-suds, salt water, mucilage, or small portions of Compound Powder of Jalap, may be used to free the lower intestines, in a more gentle manner. I have employed the Epilobium in one case of this disease, and seemingly with marked benefit, and would recommend it, in addition to the means already named.

"If there be evidence of suppuration, or of fæcal abscess, whilst we endeavor to limit the action by slight counter-irritatants, by occasional local depletion, we must sustain the power of the patient by Quinine, by food and by tonic treatment.

Opium is often of great value in its anodyne and narcotic action, in checking peristaltic action, relieving pain, soothing an over-excited nervous system, the excitement of exhaustion, and often procuring refreshing sleep. When there is collapse and tympanitis, evincing perforation of the appendix or intestine, nothing should induce us to administer any aperient, or induce action from the bowels. We desire to limit the mischief produced by checking the movement of the intestines, and to diminish inflammatory action, by soothing the nervous system; Opium must be given freely, and only a small quantity of food administered.'.—(Habershon.)

DYSENTERY.

Inflammation of the large intestines is among the most frequent diseases of the digestive apparatus. It occurs at all ages, and in all climates, though it is more frequent and severe in southern latitudes. In this country it usually prevails to the greatest extent during the fall months, though sometimes met with during the summer. Occasionally it becomes epidemic, and is extremely severe, and at these times it has been claimed by some that it was contagious.

The causes of dysentery are chiefly sudden atmospheric changes, or a high range of temperature following a wet and cold season, over-exertion and arrest of secretion, the accumulation of morbid secretions in the intestinal canal, miasmata, and, in the epidemic form, a zymotic poison in the atmosphere.

SYMPTOMS.—Dysentery may very properly be divided into the sporadic and epidemic, and the last we will find assuming many different characters. Sporadic dysentery is sometimes preceded by constipation, but more frequently by slight diarrhœa. The patient has small mucous or bloody evacuations from the bowels, attended with tormina and tenesmus. At first they are not very frequent, but after a time they recur as often as every five to fifteen minutes. Sometimes the disease commences with a well-marked chill, but at others none is noticed. More or less febrile action will be found in all cases, the pulse hard and increased in frequency, the skin dry and harsh, the urine scanty and high-colored, and considerable

restlessness and uneasiness. Pressure over the colon will usually detect a soreness in some part of its course.

Most generally in this form of the disease, the upper bowels are obstinately constipated, as the discharges consist entirely of mucus, mucus and blood, or almost pure blood; sometimes, however, it assumes the character of dysenteric diarrhœa, the operations having more or less feculent material mixed with them, or the dysenteric discharges being alternated with diarrhœal. Day by day we observe the disease becoming severer unless controlled by appropriate treatment, until at last the patient is very much reduced, the symptoms assuming the character of those of the epidemic form of the disease.

Epidemic dysentery occurs in two principal forms, though there are various gradations: these are, cases with obstinate constipation of the small intestines, with an active grade of fever; and cases where there is an irritability of the intestinal tract, with a low or asthenic fever.

In the first form, the disease almost always commences with a well-marked rigor or chill, followed by high febrile action. The discharges from the bowels soon become frequent, are preceded and attended by tormina, the pains being of a severe cutting character. The tenesmus, or desire to evacuate the bowels, is almost constant, and is very distressing during the operation; it seeming to the patient that the desire for an evacuation would never cease. No rest can be obtained during this condition, and as a natural consequence the patient is very fretful and uneasy. The discharges from the bowels are sometimes pure mucus, at others mucus mixed with blood, and again seemingly almost pure blood, in each case the material being unchanged, not dirty or discolored, as in the next form of the disease.

As it continues we find that day by day the disease becomes seemingly more severe. The fever is remittent or continued, and very severe, the skin being dry and parched, the pulse hard and frequent, pain in the head and back, the tongue coated, a bad taste in the mouth and loss of appetite, the urine scanty, sometimes passed with difficulty, and anxiety and uneasiness from the almost total want of sleep from the commencement of the disease. Up to the sixth or seventh day the symptoms will be thus acute, but after that, we find the fever assuming a typhoid type, and the discharges from

the bowels become discolored and offensive, as in the next variety.

The second form frequently commences as above described, the fever following the chill or rigor being acute. The discharges from the bowels are small, and composed of mucus and blood, and attended with an intense tormina and tenesmus. But in the progress of the disease it is found that any cathartic will start the small intestines into action, and we have more or less offensive feculent matter passed with the dysenteric discharges, or alternately with them. When this occurs, the typhoid symptoms described below soon make their appearance. In other cases the discharges are semi-diarrhœal at the commencement, and we find this irritability of the small intestines, and sometimes of the stomach, continuing throughout the progress of the disease. This feature of the disease must be noticed, for if we should give in this case a cathartic to increase secretion from the liver, and open the small intestines, we would many times set up an irritation that we would find it impossible to quiet. Dr. Copland describes the symptoms of *typhoid* dysentery as follows: "The patient complains at first of general depression, vertigo, violent headache, increased sensibility to light, pains in the limbs and joints, and of gripings and purgings, followed by anxiety at the præcordia, stupor, foul clammy tongue and mouth, which soon becomes dry and covered by a brownish coating, a penetrating offensive odor of the breath, and intense thirst. The pulse at first is very quick and small, and afterward weak and irregular. The stools are, from the commencement, very frequent, in small quantity, preceded by tormina and tenesmus, and glairy or serous, and contain more or less dark blood. The urine is scanty, thick, and dark colored. About the fourth or sixth day, a milliary eruption or petechiæ sometimes appear about the neck, breast, arms and abdomen, and occasionally epistaxis occurs, between the fourth and eighth days, in young and robust subjects, but without becoming critical. The intensity of the tormina and tenesmus generally diminishes with the progress of the disease, and often about the ninth or eleventh day is replaced by a colliquative diarrhœa. The stupor is now attended by delirium; the soft solids waste and become flaccid; the surface assumes a dirty hue, and an offensive penetrating odor issues from the body and evacua-

tions. If not ameliorated or arrested in its progress, this form terminates fatally from the eighth to the twenty-fourth day."

Many of these symptoms make their appearance in the last stages of epidemic dysentery, and we see cases that run their course as just described. We again find others much more malignant. By the second, or third, or fourth day, the countenance is sunk, anxious, and cadaveric, the tongue covered with an offensive brown fur, sordes on the teeth, fetor of breath, a small, feeble and frequent pulse, great depression of the nervous system, and want of power to control the voluntary muscles. The evacuations, which were at first of a dirty mucus, with more or less dark grumous blood, sometimes alternated by a very fœtid feculent matter, now become reddish and slimy, resembling the washings of meat, or prune juice, and excessively fœtid and cadaverous. The tormina and tenesmus, which at first were severe, abates, and sometimes the stools are passed involuntarily, and attended with sinking and tendency to syncope. Soon delirium ensues, the patient lies on the back, sinks down toward the foot of the bed, picks at the bed clothes, and after lasting in this condition longer than it would seem possible, finally sinks.

DIAGNOSIS.— Dysentery is one the most easily recognized of diseases. The small, mucous or bloody evacuations, the tormina and pain preceding and attending the operations, and the tenesmus, or feeling as if more should pass, straining to effect it, are so distinctive as to render it almost impossible to make a mistake. The only conditions with which it could be confounded would be disease of the rectum from hemorrhoids, fissure, stricture, or sympathetic irritation from the bladder or vagina in front. But these are not attended with the constitutional disturbance of dysentery, and may be thus recognized.

PROGNOSIS.—The prognosis will depend to a considerable extent upon whether the disease is sporadic or epidemic, and whether it is an acute inflammation with vigorous reaction, or a typhoid disease. Sporadic dysentery is very easily treated, and not having seen any other, practitioners sometimes get the idea that it is an affection very easily managed, and by simple remedies, which notion is not generally lost until they lose several patients in an epidemic, and thus have to study

the disease. That form of the affection in which there is manifest irritability of the small intestines, or the one described as typhoid dysentery, are most serious forms of disease, and require much care in their management. As a general rule, all the cases during an epidemic will closely resemble each other in their general features, so that after determining its character at first, we are not likely to make mistakes, especially the fatal one of mistaking a typhoid for a sthenic disease.

POST-MORTEM EXAMINATION.—The appearance of the abdomen and contents on dissection vary greatly. In some cases, on opening the abdominal wall, we find more or less of a dirty, turbid serum within the peritoneum, or the omentum agglutinated to the superficial convolutions of the intestines, and these feebly adherent to each other, from the effect of peritonitis. The small intestines rarely present more change than this, except more or less discoloration from softening and imbibition. The colon is sometimes displaced from elongation of the longitudinal fibres, in some parts thickened, others thinned, and frequently presenting singular constrictions, as if the part had been tied with a ligature. On opening the intestine, the mucous membrane is seen to be variously discolored from a pale-grey to a greenish or violet color, and from a pale red to a reddish-brown or black. Large portions of coagulable lymph are sometimes found partially adherent to the surface. At some points the mucous membrane seems thickened, and its epithelium detached so as to form a large irregular excoriation, covered by the slimy, cadaverous material which was being passed before death. At other times the ulcers are deeper, extending into the mucous membrane, through it to the muscular coat, or through this to the peritoneum, having thus set up peritonitis in the latter stages of the disease, or in some cases having perforated the entire wall of the intestine. The ulcers may be numerous and small, or large and few in number, sometimes circumscribed and well defined, at others irregular and sloughy. In some cases we find the intestine divested of considerable portions of its mucous membrane, which has passed by stool during life.

TREATMENT.—The treatment of sporadic dysentery is usually a very simple affair, though by the use of harsh cathartics,

followed by opiates, it may be made a very unpleasant disease. Unfortunately this is the common treatment, and many physicians seem to think that "overcoming the constipation of the upper bowel" is the one thing to be attended to. Some content themselves with giving castor oil and turpentine for this purpose; others give Podophyllin; others the saline cathartics; but almost every thing of a cathartic kind has been employed. Let us say to commence with, that we get along very nicely without cathartic medicines.

Usually I prescribe—℞ Tinct. Aconite gtt. v. to x., Tinct. Ipecac. gtt. x. to xx., Water ℥iv.; a teaspoonful every hour. Those who have never employed this treatment will be surprised to see how prompt and certain the action of these remedies is.

In the severer cases we may have to add to this treatment, but it is always according to well known indications. Thus, if the patient complained of continued pain, with tenderness on pressure, we might add the Dioscorea. If there was colicky pain, or uneasiness in the right hypochondrium, and pain pointing at the umbilicus, the color sallow, we would alternate the remedies first named with small doses of Nux. If the tongue was morbidly reddened and pointed, give the Sulphate of Magnesia. If the patient was very uneasy, with sensations of burning or scalding, we would think of Tinct. Colocynth gtt. x. with the Aconite.

In the common cases we do not care to use local applications or enemas, but when very severe these become important. If it is a sthenic inflammation with a high range of temperature, cold applications to the abdomen, or the half-pack, will sometimes be useful. But in the ordinary case a flannel cloth wrung out of hot water, and covered with oiled silk, will prove the best application. When the pain is very severe the local application of chloroform, followed by the hot pack, gives great relief. In a rare case the tormina and tenesmus are so distressing that we set the patient in a tub of water as hot as can be borne, and surround him with blankets, letting him remain until easy.

The use of demulcent and narcotic enemata was regarded as an important part of the old treatment, and sometimes it may be required to give relief. The injection of starch water and laudanum, two tablespoonfuls of the first and half a tea-

spoonful of the second, repeated after each discharge, is the injection in common use. But in some cases a simple demulcent, like elm water, or an astringent, as tannic acid added to water, or a solution of sulphate of soda or chlorate of potash, gives greater relief.

When the tormina and tenesmus, and frequency of discharges, are so distressing as to demand immediate relief, I should rather trust to the hypodermic injection. One-fourth of a grain of morphine to the syringe full of water (usually ʒss) is about the quantity, and it should be used as near the part as possible. The hypodermic injection of simple warm water will sometimes give marked relief.

In the severer cases the fever that attends the dysentery should be treated in the usual way, though, as will be seen, we have a very good treatment for a fever. In malarial regions the fever will usually be distinctly periodic, and in some seasons this is so marked that antiperiodic doses of Quinine are used with the effect of breaking up the disease.

Epidemic dysentery will sometimes require no more than the treatment already named, but in other seasons the cases will have to be carefully studied and treated. Epidemic remedies have a marked influence in these cases of dysentery, and if we determine this in the early part of the season, we will have but little trouble. We may study the remedies for this form of the disease in our usual way.

The stomach must be kept in good condition, and any wrongs of this viscus must be looked after at first. If the tongue is elongated and pointed, reddened at tip and edges, and there is tenderness on pressure over the epigastrium, we have an unpleasant case. Here very small doses of Aconite and Ipecac. with sulphate of magnesia, and the cold or hot pack over the stomach, will likely give relief. If the tongue is broad and pallid, heavily coated at base, with feelings of weight and fullness in epigastrium, an emetic may be used, or in place of this Sulphite of Soda in the usual doses.

The *pallid* tongue calls for a salt of soda, and we usually give the Bicarbonate. If the tongue is pallid and dirty, give the Sulphite of Soda; if bright red and dirty or brown, Sulphite of Magnesia, or less red, Sulphurous Acid. When *deep-red*, give Muriatic Acid. When the color is bluish and dirty, and there is a bad odor from the breath, the remedy is Chlo-

rate of Potash. Salicylic Acid will undoubtedly prove an excellent remedy in some of these cases, and I would recommend it in combination with Borax, ten grains of each to four ounces of water; the dose is a teaspoonful, and a tablespoonful would be the right quantity for an injection.

In some cases we have the characteristic indications for Rhus—the sharp stroke of the pulse, burning pain, frontal headache, and peculiar appearance of the papillæ of the tongue. Gelseminum becomes a prominent remedy when the face is flushed, the eyes bright, the pupils contracted, increased heat of head, restlessness and irritability. I knew one season in which these symptoms were a marked feature in the majority of cases, and Gelseminum seemed almost a specific for dysentery. So in some cases we will find the opposite class of symptoms—dullness and inclination to sleep, dull expressionless face and eyes with dilated pupils, and we give Belladonna.

There is a group of cases in which Podophyllin exerts so marked an influence that it is well to note the symptoms calling for it. The tongue is broad and full, uniformly coated; the bowels are full, and there is especially fullness of the superficial veins. The best form is to give it triturated with Sulphate of Magnesia, one part to ten, about one-fourth of a grain every three hours.

The White Liquid Physic of our Dispensatory has proven a specific in some seasons of dysentery, though I can hardly point out the cases. It was given in tablespoonful doses every one or two hours, until it moved the bowels, and then in smaller doses. I think the formula may be altered with advantage, using less acid, as—

℞ Sulphate of Soda, ʒviij.
Nitric Acid,
Muriatic Acid, aa. ʒij
Water, ʒxxiv. M.

Where there is a tendency to irritation of the small intestine—dysenteric diarrhœa—much care must be used not to increase the irritation. In some of these cases Olive Oil may be used to obtain a gentle action of the bowels.

The Epilobium is an excellent remedy in this class of cases, and it will sometimes give prompt relief. I prefer to use it in infusion, a tablespoonful every one or two hours.

The *typhoid* dysentery is treated as a typhoid fever, with the addition of such special means as have been named. The

class of antiseptics, which are very important remedies in these cases, have already been considered in part. The Sulphite of Soda, Sulphite of Magnesia, and Baptisia, will be the ones most frequently indicated.

The Baptisia is especially a good remedy in a most unpleasant class of cases, where the discharges look like the washings of meat, and the tongue is markedly reddened (dusky), and looks like raw beef, the papillæ frequently enlarged, the coating being slick, and heavy towards the base. In this case I use a combination of these remedies, as—℞ Tincture Aconite gtt. v., Tinct. Ipecac. gtt. x., Tinct. Baptisia gtt. x., Water ℥iv.; a teaspoonful every hour

The Carbo-veg. is a very important remedy in typhoid dysenteric diarrhœa, and indeed in some cases without typhoid symptoms. The tongue is small, pallid, moist, and the coating is inclined to lift in spots; the tissues are soft, and the surface pale. I use the first decimal trituration in doses of one grain every three hours, alternated with the Ipecac.

It is very important in these cases that great cleanliness should be observed, as the patient may be poisoned by the exhalations from his own body, and the disease propagated to others. Have the room well ventilated, the bed and clothing frequently changed, and the vessels thoroughly washed and disinfected. In some cases the use of disinfectants in the room, as Chlorinated Soda or Sulphurous Acid, with the spray apparatus, is of importance.

When putrescence is a marked feature we obtain benefit from the use of antiseptic baths. In other cases, in the advanced stage of the disease, Quinine inunction is beneficial.

Small doses of Quinine may be employed to increase innervation, and occasionally stimulants to sustain the strength. The food should be carefully selected and prepared, and given at such times as there is least pain and uneasiness. Rest is always important, and we give strict charge that the patient be kept quiet and free from all annoyance.

The inflammatory process is the same, wherever we find it, and the same general plan of treatment should be followed. Indeed, we may say, that a treatment which is good for inflammation of one part, must be good for inflammation of any part. The treatment which is good for an inflammation of a large part, is the treatment that should be employed in

a small part. The exception to these general rules is found in the elective affinity of remedies for special parts. If we have such remedies for the affected part, and they will do something that needs be done to relieve the irritation of it, or to conserve its life, then we have a special treatment. But both the special and the general means are of similar kind, and work harmoniously together.

CHRONIC DYSENTERY.

Chronic inflammation of the large intestine may result from an acute attack, or be excited by diarrhœa, by acrid material within the intestinal tube, or from long-continued exposure to malarial influence in a hot climate. Like all other chronic inflammations, there is but little tendency to spontaneous cure, and the constitutional disturbance usually increases in proportion to its duration. Occasionally we find cases in which it has continued for years, usually as a gleety discharge from the rectum, or lower part of the colon, and produces much less constitutional disturbance than we should suppose. Quite frequently we find it associated with disease of the liver or spleen, and a marked impairment of the blood-making organs.

SYMPTOMS.—The prominent symptom of the affection, is, more or less frequent discharges from the bowels, attended with more or less pain and tenesmus. The discharges vary greatly in character, sometimes a whitish-gray, or yellowish mucus, occasionally mixed with blood, but more frequently with feculent matter. In some cases all the discharges are feculent, but of small size, and at the last part the mucus is discharged with tenesmus, In severe cases, the discharges are reddish, pultaceous, with more or less pus, and very offensive. The small intestine may be either irritable, or torpid; in the first case the fæces are discharged in a fluid form; in the second, usually in hard masses, sometimes scybalous. In some rare cases we find more or less fluid feculent material with every discharge, and suppose from this that the small intestines are acting, but the administration of a cathartic, will bring away large masses of scybala.

The condition of the general health varies greatly, usually we find a dry, harsh skin, imperfect action of the kidneys,

irregular appetite, more or less pain in the head, and in various parts of the body, with great loss of flesh and strength.

In some cases these symptoms are very marked, the patient being confined to his bed a considerable part of the time.

Where the disease was contracted in a hot climate, the skin is frequently sallow and yellow, dry like parchment, or relaxed and flabby. In severe cases, the disease is complicated with an intermittent fever, recurring every day, every other day, or at intervals of a week; all the dysenteric symptoms being aggravated at these times. The disease continuing, terminates fatally by exhaustion, or by ulceration and perforation, or more frequently by inducing an asthenic condition terminating in disease of the lungs, liver or brain.

DIAGNOSIS.—Chronic dysentery is one of the most easily recognized of diseases, though the condition of the bowels and the complications are hard to determine.

PROGNOSIS.—Where of not very long standing, the general health being pretty good, there is not much difficulty in its removal; but if of long duration, the general health being severely affected, and evidence of considerable structural change, the prognosis is uncertain.

POST-MORTEM EXAMINATION.—As in the acute disease, we find the bowel more or less discolored externally, with thickening in some places and thinning in others, appearance of stricture as before named, and more or less displacement; dilatation of some parts and stricture of others, is of quite frequent occurrence. On opening the bowel, the mucous membrane is seen variously discolored, dusky-red or brownish, or ash-gray, thickened at some points, and divested of epithelium, and at others well-defined ulcers, sometimes small and aggregated, at others large, the borders sharp cut, and well defined, or irregular and sloughy. The stomach, liver, spleen and small intestines are found affected in some cases, as is also other portions of the body.

TREATMENT.—The cure of chronic dysentery is usually a slow process, requiring care, patience and perseverance. Occasionally we find that one remedy, as the Epilobium, Ipecacuanha, Colocynth or Hamamelis, will accomplish it, but this

is not generally the case. Among the measures employed, the irritating plaster holds a prominent place; it should be applied in the course of the colon, wherever tenderness is detected. Frequently its use so as to produce a crop of pustules, and then ceased until the irritation subsides, answers the purpose; in other cases it should be continued to produce free suppuration. The general bath is also an important feature of the treatment, for if the skin can not be stimulated to normal action, there is but little hope of arresting diseased action of the colon. We may use the alkaline or Salt-water bath, with brisk friction, or in some cases the entire warm bath, or sitz bath; or it may be rendered stimulant by the addition of Capsicum in cases of deficient circulation; or tonic and astringent by the use of a decoction of those agents, in cases of relaxation and atony, or the inunction of Quinine.

Among the general measures none are more important than those restoring the function of the kidneys and stomach. The saline diuretics are applicable in all cases in which there is headache, a foul tongue and disordered digestion, and may be continued in small doses for weeks. If there is febrile action, as is the case frequently, Quinine with Hydrastine should be employed. In other cases a gentle bitter tonic, as of Cornus, Collinsonia, Populus, etc., with some preparation of Iron, will suffice. Occasionally benefit is derived from the use of Cod-liver Oil and the Hypophosphites.

For the dysentery, different means are employed according to the condition of the bowels. Sometimes the administration of minute doses of Podophyllin with Leptandrin, thoroughly triturated with Loaf Sugar, answers an excellent purpose; to render it tonic and gently stimulant, Hydrastine and Myricin may be added, and to alternate, the Trillium and Euonymus may replace the last two. Where there is tendency to atony of the small intestines, with torpor of the liver, a better combination could not be asked. The White Liquid Physic, followed by Quinine and Hydrastin, is highly recommended by my friend, Dr. Milton L. Thomas, and from its action in the acute form, I am led to believe that it will be found useful. If there is relaxation of the entire intestinal tract, the Geranium, with Leptandra and Dioscorea, answers well; or, having restored the functions of the other excretory organs, we may use the Per-sulphate of Iron, in doses of three grains four

times a day. It is in this case that we get the most decided action from the Epilobium.

As regards injections, they are sometimes useful. In subacute cases, those named under the head of acute dysentery may be employed. If there is great irritation about the rectum, a strong decoction of the inner bark of the Common Elder, with an equal quantity of Glycerin is very efficient, as is also the use of a suppository of Belladonna, or an injection of Sulphate of Zinc with Morphia. Large injections are sometimes employed, as of cold or warm water, an astringent or tonic infusion, or of Chloride of Lime or Potash, Sulphate of Zinc, Creosote, etc.

In one case, the disease seeming to be confined to the sigmoid flexure and rectum, a decoction of Alnus, Rumex, and Quercus Rubra, to the amount of a pint, was used as an injection three times a day, curing the patient in about four weeks, the disease having lasted seven years.

When the disease is stubborn and attended with tenesmus and feeling of irritation in the rectum, it is well to examine it with a speculum, to determine if there is not structural lesion that keeps up the irritation. In one case, the patient having suffered for some three years, and passed through the hands of several practitioners, applied to me for treatment. I employed all the means that I could think of as likely to be beneficial, for four months, but without any permanent advantage; and was about to discharge him as incurable, when my attention was casually drawn to the condition of the rectum, by his complaining of a sharp cutting pain at the edge of the anus. On examination I found a fissure about an inch long, and a small polypoid excrescence situated just above it. In a moment this growth was snipped off with the scissors, and an incision was made through the entire extent of the fissure, about a line in depth. All irritation seemed to disappear, and in ten days not a vestige of dysentery remained. In another case of nearly as long standing, three internal hemorrhoids were found, and a herpetic eruption covering the entire mucous membrane. This was removed by the application of a solution of Perchloride of Iron, one part, to two of water.

INTESTINAL WORMS.

Intestinal worms may be considered an evidence of disease of the mucous membrane, rather than as a disease itself, as it is only because the germs of these entozoa have found a nucleus in the deranged structure of the bowels, that the worms are developed.

It is yet doubtful how some of them originate, but as the German naturalists have recently determined the origin of the *tænia*, we may at once give up the idea of spontaneous generation, and by still further research, will doubtless find that their mode of transmission from one body to another is a very simple matter. Thus in the case of the tænia *solium*, it has been traced from the *cysticercus* of the pig, through all its gradations up to the fully formed worm. These cysticerci are very tenacious of life, and may get into the intestinal canal by eating raw or partially cooked fresh pork, or even bacon.

When once introduced, their development goes on until the worm is fully formed; each joint contains a multitude of eggs, which being discharged with the intestinal contents, regains its original habitat—the hog, is developed into a cysticercus, which in turn by transplantation, will form a tænia. I have not space here for a full description of the various stages, and would refer those curious upon the subject to the work of Kuchenmeister.

The principal varieties of intestinal worms are: the *ascaris lumbricoides*, the *ascaris* or *oxyuris vermicularis*, the *trichocephalus dispar*, and the *tænia solium* and *vulgaris*.

The *ascaris lumbricoides*, or long round worm, is described by Dr. Good as having a slightly incurvated head, with a transverse contraction beneath it; mouth triangular; body transparent; color, light yellow, with a faint line down the side; gregarious, viviparous; from six to fifteen inches long; inhabits principally the ileum, but sometimes ascends into the stomach, and creeps out of the mouth and nostrils; occasionally travels to the rectum, and passes away at the anus.

The *ascaris vermicularis*, or small thread worm, has its habitat in the rectum, though it sometimes gets into the intestines, and occasionally in the female, into the vagina. "The

head is subulate, nodose, and divided into three vesicles, in the middle of which it receives nourishment; skin at the sides of the body finely crenate or wrinkled; tail finely tapering and terminating in a point; gregarious, viviparous; and about half an inch long."

The *tricocephalus dispar*, or long thread worm, is found in the intestines both large and small, and in the stomach, and specially in sickly children and those who are poorly nourished.

"The body is obese, slightly crenate, beneath smooth, finely striated on the fore part; the head obtuse and furnished with a slender retractile proboscis; tail or thinner part twice as long as the thicker, terminating in a fine, hair-like point; about two inches long, and its color light yellow."

The *tænia solium*, or long tape worm, is described by the same author, "as having long and narrow articulations, with marginous pores, by which it attaches itself to the intestines; one on each joint, generally alternate; ovaries arborescent; head with a terminal mouth, surrounded with two rows of radiate hooks or holders; and a little below on the flattened surface, four tuberculate orifices, or suckers, two on each side; it is from thirty to forty feet long, and has been found sixty. Inhabits the intestines of mankind, generally at the upper part, where it feeds on the chyle and juices already animalized. Is sometimes solitary, but commonly in considerable numbers; and adheres so firmly to the intestines, that it is removed with great difficulty. It is said to have the power of reproducing that which has been broken off; but this assertion wants proof. The animal is oviparous, and discharges its numerous eggs from the apertures in the joints." The articulations are from four to six lines in length, and nearly as much in width, and resemble gourd or melon seeds.

"The articulations of the broad tape-worm are short and broad, with a pore in the center of each joint, and stellate ovaries around them; body broader in the middle, and tapering toward both ends; head resembling the last; inhabits the upper part of the intestines, and feeds on the chyle; from three to fifteen feet long; usually in families of three or four."

SYMPTOMS.—With many if not all forms of worms, it is necessary that the bowels be in a condition to furnish a com-

fortable habitation. This condition is essentially one of want of tone, with, in many, increased secretion of intestinal mucus. We observe in many cases, that the child or person is poorly nourished, the muscles are soft and flabby, there is a loaded tongue, bad breath, and derangement of the secretions. We are not inclined to believe that this is the result of worms, but simply coincident with them, and in some cases the patient has what is termed *worm fever*, usually of an intermittent or remittent character, the paroxysms occurring in the afternoon and evening, at which time we find the skin hot and dry, the pulse frequent, the head hot, and marked irritability and restlessness, and occasionally convulsions. Or the fever may be more obscure, the child is fretful and nervous, sleeps poorly, its breath is fœtid, tongue coated, bowels irregular, abdomen tumid, is frequently picking its nose, the upper lip swells, a white line appears around its mouth, and it seems to be out of order generally. These are the symptoms of the first named varieties, though not nearly so well marked in the case of the ascaris vermicularis. Though seeming to be very plain, yet all these symptoms may be present, and no worms; or worms present, and but few of these symptoms. The only certain evidence of the existence of worms is their presence in the fæces, and even then we can not be certain but that all have passed. The ascaris vermicularis makes itself known by an intolerable itching and crawling sensation about the anus. At first it generally comes on after the little patient gets warm in bed, the irritation being so great that sleep is impossible; at last, they are more or less troublesome all the time. The irritation is occasionally so great as to impair the health, and occasionally gives rise to convulsions.

As regards the symptoms of tapeworm, they are very deceptive. In one hundred cases recorded by Seeger, in sixty-eight instances nervous affections, or general or partial convulsions accrued—epilepsy, hysteria, abdominal spasms, convulsive cough, dyspnœa, melancholy and hypochondriasis; in forty-two, various pains in the abdomen; in thirty-three, disordered digestion and irregular states of the evacuations; in thirty-one, irregular appetite and voracity; in nineteen, habitual or periodical hemicranias; in seventeen, sudden colic; in sixteen, sensations of undulatory movements in the abdomen up to

the chest; in fifteen, vertigo, delusions of the senses, and defects of speech; and in eleven, shifting pains in various parts. The only definite evidence of the presence of tapeworm is the passage of portions of it with the fæces, and as this usually occurs with this worm, the non-appearance of the joints in the evacuations during a considerable time, may usually be considered as good evidence that the worms do not exist in the intestinal canal.

TREATMENT.—The treatment of the ascaris lumbricoides and tricocephalus will be very similar, the object being to remove the worms, and break up the predisposition to them by removing the condition on which they depend. Very many vermifuge remedies have been recommended and used with success, so that the trouble will be, not that we have no remedies, but that we have too many. The old-fashioned remedy, "Pink and Senna" in infusion, seemed to be about as certain as any other agent, and I am satisfied, that if it was as disgusting to the worm as it is to the child, it would readily leave its nest in the bowels, rather than take the dose. Still it is not more nauseous than the Oil of Wormseed, which is an ingredient of all the principal vermifuges.

℞ Oleum Chenopodii, ʒx.
Oleum Terebinthinæ, ʒij.
Oleum Ricini, ʒiij.
Aqua Calcis, ʒx.
Syrupus Limoni, ʒvj. M.

The dose being two teaspoonfuls three or four times a day. Kuchenmeister recommends the Santonine and the Santonate of Soda, for the ascaris lumbricoides; he considers it to be best administered in Oil, in order to bring it into solution as readily as possible, and thus combine it with Castor Oil, or sprinkle it on bread and butter, and follow it with Jalap and Senna. Troublesome effects sometimes follow the administration of this remedy, as severe irritation of the nervous system, convulsions, tenesmus, bloody stools, and the minor disturbances, green or bluish vision, and discoloration of the urine. I prefer to use Santonine with Podophyllin, as in the following formula:—℞ Santonine grs. x., Podophyllin grs. ij.; White Sugar ʒij. Triturate thoroughly, and divide into twenty powders; give one morning and night, until free evacuation of the bowels is produced. The worms sometimes pass alive;

sometimes wandering forth without any operation, the intestine having become unpleasant for them.

A judicious tonic course of medicine, the bowels being kept regular, and the other secretions free, with an avoidance of all grease or indigestible food, the daily use of the bath, and exercise in the open air, are the only means by which we can break up the tendency to the formation of worms.

Many remedies have been recommended for the ascaris vermicularis, but in my opinion all vermifuge medicines should be discarded. If the patient's bowels are irregular, proper means should be taken to overcome the difficulty, and if necessary, a tonic and bracing treatment adopted. For the worms I have always directed an injection of Salt and cold water, in the proportion of a teaspoonful, to half a teacupful, and so far with invariable success.

For the removal of tænia we may use Turpentine, as the formula of Kuchenmeister:

℞ Oil of Turpentine,
Castor Oil,
Honey, aa, ʒj. M.

To be beat up with the yolks of three eggs, and taken at bedtime in divided doses, but within an hour. In some cases, he remarks, it is best to give Turpentine in doses of ʒij. at once in the morning, fasting, and if it does not operate, follow with Castor oil. It is a very effectual medicine, but extremely nauseous, and sometimes irritating to the bowels and urinary organs. The Pomegranate bark (Punica granatum) has been used for the removal of the worm: eight ounces of fresh bark being boiled with three pints of water to one pint, and taken in divided doses at short intervals until the worm is expelled. This remedy is highly recommended by Prof. Locke, who adds Fluid Extract of Jalap and Senna, in sufficient quantity to move the bowels.

Male Fern has proven a very successful remedy; previous to its administration the bowels should be well moved with the Podophyllin Pill, or Compound Powder of jalap and Senna, and from ʒss to ʒjss of the Ætherial Oil administered in mucilage or milk, in the evening, fasting. If all the worm does not pass, which is known by finding the head, the remedy may be repeated in two or three days, in the same manner, and continued until it has all passed. The *pumpkin seed* treatment is highly praised by some: two ounces of the seed

should be deprived of their capsules, beat into a pulp, with sugar and water, and taken upon an empty stomach; in two hours a dose of Castor Oil. The remedy should be repeated every other day until the entire worm is expelled. The Brayera Anthelmintica or Kosso, was highly lauded at one time, though at present it has had to give way to the Male Fern: ℥ss of the flowers are infused in Oss of Water, and taken in the course of one hour on an empty stomach; it should be followed in two hours with Castor oil, and repeated every two or three days until the entire worm passes.

STRICTURE OF THE RECTUM.

Stricture of the rectum may be either structural or spasmodic, most generally a union of the two, as we have no reason to believe that spasmodic action could take place to such an extent as to obstruct the bowel, at least for any considerable time. Stricture may result from chronic inflammation, from hæmorrhoids, from fistula, from cancerous diseases, and in some cases without apparent cause. It consists essentially in thickening of the intestine by interstitial deposit or effusion of fibrous material, and its contraction, as is frequently the case with this material. It may occur at any portion of the rectum, from the verge of the anus to the promontory of the sacrum, and rarely as stricture of the colon.

SYMPTOMS.—The symptoms of stricture of the rectum make their appearance slowly, usually as difficulty in defecation. If the bowel becomes costive, and the fæces hard, the difficulty is very marked, but when semi-fluid, it is not noticed; it is also found to be worse from any cause that would excite irritation and spasmodic action. When further advanced, the passage of fæces is more difficult, and they are ribbon-like in form, and sometimes streaked with mucus, pus, or blood. Occasionally it seems as if the patient could not have an evacuation at all; there is extreme tenesmus, with colicky pains in the abdomen, a feeling of prostration and weakness in the lower portion of the body. Continuing, it finally causes marasmus, and severe cachectic disease setting in, terminates the life of the patient.

In cancerous disease of the rectum, there is more or less sharp lancinating pain, sometimes seeming to be confined to

the anus, at others extending to the hip, or down the thigh. Passing to the stage of ulceration, there is more or less discharge of sanies or imperfectly formed pus, and in some cases serious hemorrhage.

DIAGNOSIS.—Stricture of the rectum is diagnosed by the symptoms above named, and especially by the ribbon-like appearance of the fæces. On examination, an obstruction is determined in some portion of the rectum, the canal being of variable size; if caused by malignant disease, it will have that hard nodose feel characteristic of these affections.

PROGNOSIS.—Usually the prognosis is unfavorable, for even though the stricture is temporarily removed, it is very certain to again recur; still some cases may be permanently cured.

TREATMENT.—In the treatment of this affection, it is very essential that the bowels be kept in a soluble condition, and all causes of irritation avoided. An easily digested diet, and one that leaves but little debris, should be recommended, which, with the use of brown bread, and the taking of a glass of cold water before breakfast, will maintain the bowels in the best possible condition. If a laxative is necessary, Sulphur, Podophyllin, and Hyosycamus, as,

℞ Podophyllin, grs. v.
Sulphur, ʒij.
Extract of Hyoscyamus, ʒj.
White Sugar, q. s. M.

Make a powder, and divide in twenty parts, of which one may be taken morning and night. It is sometimes useful to add a bitter tonic, as the Hydrastia.

To relieve the irritation of the rectum, and consequent spasmodic action, a suppository of Belladonna, with butter of Cacao, will be found efficient. If there is ulceration, an injection of a decoction of Hydrastis, Cornus and Rumex, may be employed. For the permanent cure, it is necessary that the stricture should be dilated with graduated bougies—for which see Surgery.

FISSURE OF THE RECTUM.

This is an exceedingly troublesome affection, and exerts a very injurious influence on the general health, causing in some cases derangement of the digestive organs, irregularity of the

bowels, and great suffering and prostration. The symptoms are: a sensation of burning in the rectum, with sharp lancinating pains, and frequent feeling of tenesmus. There may be sometimes a small portion of mucus or blood detected in the fæces. Occasionally it gives rise to irritation of the urinary and genital organs, which proves intractable, until the fissure is removed. A very severe case of uterine disease, in my practice, with irregularity of the menses, and profuse leucorrhœa, which resisted all treatment, was readily cured by determining the existence of fissure of the anus, and removing it; this may be taken as an instance of the effects resulting from fissure.

TREATMENT.—The treatment, though surgical, is very simple and remarkably successful, which can not be said of the old plan of cauterization with Nitrate of Silver, Nitric Acid, Chloride of Zinc, etc. The part having been exposed with the anal speculum, an incision is made with a bistoury, or scalpel, the entire length of the fissure, and about a line in depth; if the edges are hardened and irregular, they may also be trimmed. Nothing further is necessary, the cure being speedy and without suffering, and the patient relieved, in a few days, of a train of unpleasant symptoms which have afflicted him for months.

HÆMORRHOIDS.

Hæmorrhoids, or piles, occur at all ages, but are most frequent after middle life. They occur usually in persons of a plethoric habit, and with the venous system prominently developed, and especially in those who have unduly stimulated the intestinal tract. Persons who have for years led an active life, but have become sedentary, are especially liable to them, as are also those of sedentary habits, and those whose work is heavy and straining. Frequently, however, we find all preconceived ideas of the cause of the disease at fault, as it occurs in the most opposite conditions.

Constipation is a frequent exciting cause of hæmorrhoids, and diarrhœa an occasional one. Torpor of the liver, and consequent congestion of the portal veins, is an important element in some varieties.

Hæmorrhoids are divided into external and internal: the external being without the sphincter ani, and covered by the skin, or partly with skin, and partly with mucous membrane; the internal being within the sphincter, and covered with mucous membrane. An external hæmorrhoid consists of an extravasation of blood into the cellular tissue from a ruptured hæmorrhoidal vein. The blood coagulates, and the fibrous tissue surrounding it becomes condensed, so as to form a hard nodulated mass. Or, in other cases, the tumor is formed by the dilatation of a hæmorrhoidal vein, the blood coagulating in it, and communication with the vein being entirely or partially shut off. On the contrary, an internal hæmorrhoid consists of a congeries of arteries and veins, in a varicose condition, forming as it were an aneurism by anastomosis, or an erectile tumor. The tissues entering into the formation of the hæmorrhoid are all hypertrophied, and the arteries and veins enlarged. It will thus be seen that there is the most marked difference between the two kinds: the external being non-vascular, and having but an indirect connection with the abdominal circulation; and the internal being very vascular, or closely associated with the condition of the abdominal viscera. On thus studying the character of these hæmorrhoids, we can readily see why the treatment for one should fail in the other.

SYMPTOMS.—The symptoms of external hæmorrhoids are a sense of fullness and pressure near the anus, with, in some cases, more or less of a sharp, lancinating, or dull, heavy, aching pain. The internal hæmorrhoids give rise to various symptoms, according to their size and position. Usually there is a feeling of warmth in the rectum, increased when the bowels are moved, and amounting to quite severe pain if the tumors are large. When of considerable size they pass down during each operation, and more or less blood is discharged at this time, giving them the name of "bleeding piles." Sometimes this hemorrhage proves such a drain upon the system, as to render the patient weak and anæmic. At certain times the tumors become congested, and having once passed down, can not be returned, but form a large, red, nodulated mass, protruding through the anus, and giving rise to uneasiness, pain, and frequent constitutional disturbance.

DIAGNOSIS.—The diagnosis of hæmorrhoids is easily made by examination; the presence of enlargement near or within the anus being readily detected. We determine external hæmorrhoids, by their being without the sphincter, and partly covered by skin, and hard and nodulated; the internal by their florid color, covering of mucous membrane, and being within the sphincter, which is their natural position.

PROGNOSIS.—With proper treatment, almost all forms of hæmorrhoids may be radically cured.

TREATMENT.—In the case of external hæmorrhoids, we may sometimes succeed in removing them by the use of astringents, as a saturated solution of Tannic Acid, or what is better, a solution of Persulphate of Iron; or sometimes the local application of cold, as ice, or ice water. A much better plan, and one that is without danger, and certain in its results, is to make an incision into the tumor, and turn out its contents. The patient should be kept quiet for two or three days, and a cold compress applied, the part usually healing kindly. Studying the anatomy of this form of hæmorrhoids, it will be readily seen why this is the best treatment, and one applicable in all cases. If much hemorrhage should occur, it may be controlled by pressure, or an injection of a solution of Perchloride of Iron into the opening. Under no circumstances must this treatment be used in cases of internal piles, as they being extremely vascular, the patient's life would be endangered from hemorrhage.

It will be recollected that the hæmorrhoidal veins entering into the formation of internal hæmorrhoids, are the most dependent parts of the portal system; this is the reason why the tumors should be so intimately associated with derangement of the intestinal canal. As a general rule, it may be stated that internal hæmorrhoids are almost invariably caused by derangement of these organs, and that this is a continuously acting cause, no matter how long the disease has lasted. Hence the importance of means for removing congestion of the intestinal circulation, stimulating the liver to normal action, and overcoming constipation.

Many cases of hemorrhoids may be cured by appropriate internal treatment. Thus, in cases of sluggish action of the

bowels and liver, which, in a large majority of cases, is an attendant, I direct:

℞ Sulphur Subl., ʒij.
Podophyllin, gr. v.
Extract of Leptandra, grs. xx.
Phosphate of Soda, ʒss. M.

Divide into twenty powders, of which one may be taken morning and night; or it may be made into a lozenge by the addition of Gum Arabic and Simple Syrup; or united with Simple Syrup and Honey, may be taken as a conserve. Another very good formula is:

℞ Podophyllin, gr. x.
Extract of Nux Vomica, gr. iij.
Extract of Leptandra, ʒj.
Extract of Hyoscyamus, ʒss. M.

Make forty pills, of which one may be taken morning and night, if necessary; or equal parts of the Extracts of Podophyllum, Hydrastis, Leptandra, Apocynum and Xanthoxylum, made into pills of usual size, and taken morning and night, also answer a good purpose. It will be seen that the object of this treatment is to stimulate the bowels to action, and get free circulation from the portal veins, thus relieving hæmorrhoidal congestion. The Convallaria, chewed and swallowed frequently through the day, or taken in infusion, is sometimes of great assistance.

There are three indications of cure. 1st. To overcome constipation, and obtain a regular and healthy action from the bowels. 2d. To restore tone to the vascular system of the pelvis, and improve nutrition. 3d. To get rid of the change of structure which forms the hæmorrhoidal tumors.

The administration of cathartic medicines to accomplish the first object must be avoided, as there are no single agents or combinations that will permanently remove constipation in a fraction of the cases. In many cases, the following simple means will answer the purpose effectually. Let the patient drink a large glass of water on rising in the morning. Then, having a basin of strong salt water by the bedside, let the lower portion of the body be thoroughly rubbed, and the abdomen well kneaded. After breakfast let an action of the bowels be solicited, giving sufficient time, but without straining. This must be followed up perseveringly; and the habit once formed, must never be broken. If the bowels fail to act when thus called upon, as is sometimes the case at first, I

direct injections of cold water until it can be accomplished without.

When the case is of long standing, and there is an atonic condition of the bowels, with feeble muscular power, (sometimes a relaxed and pendulous abdomen), I have one or two drops of tincture of Nux Vomica added to the morning glass of water.

In other stubborn cases, where there seems to be a want of fluid with the fæces, I have the patient take from twenty to forty grains of Phosphate of Soda in a tumbler of water on going to bed. The dose is reduced gradually day by day, until nothing but the water is used.

This plan has never failed with me, when patients would persevere, but I have had many cases reporting as follows. Oh, yes, it did well enough as long as I was so exact, and did the drinking, and rubbing, and went to stool at a certain time, but everybody can't be so exact, and just as soon as I neglected it for a few days, I was as bad as ever. That is, they expected to be radically cured of a vice of a lifetime's growth in two or three weeks.

The second indication of cure I accomplish by the use of a specific — the Hamamelis Virginica. I prefer the *distillate* Pond's Extract, using it in doses of half a teaspoonful three or four times a day. Collinsonia in small doses may be employed in place of the Hamamelis. I usually prescribe it in the proportion of:

℞ Fluid Extract of Collinsonia, gtts. x.
Water, ʒiv. M.

A teaspoonful four times a day. I do not propose to account for the specific action of these remedies, but the reader will find them very positive in action. If nutrition is enfeebled, I use in addition the bitter tonics and restoratives.

The third indication of cure I accomplish by the local applicatiod of a solution of Persulphate of Iron, or Monsel's Salt. I am in the habit of ordering it in the following form:

℞ Solution of Persulphate of Iron,
Tincture of Opium, aa. M.

Apply to the hæmorrhoids that pass through the sphincter freely with a soft brush; to those internal, introduce the application with a soft cotton or linen cloth. It may be used after going to stool in the morning, and upon going to bed at

night, but if the person is actively engaged during the day, the one application at night will be sufficient.

A very essential part of the treatment is to restore the skin to its normal condition by the use of appropriate baths and friction. If as is usually the case, there is relaxation of the perineal structures, use the Salt hip bath, with thorough rubbing of the lower portion of the abdomen, pelvis and thighs; this bath should be used cold if possible. Other means that would seem to be indicated by the condition of the patient, should be employed, as it is essential to obtain the best possible general health.

For the temporary relief of hæmorrhoids, nothing is better in a great number of cases than an injection of ice-cold water in small quantity, or its application if the piles are extruded. In some cases when they were down, forming a large mass impossible of replacement, I have used powdered ice and salt in a bladder, carefully applied, so as not to produce sloughing of the entire tumor, with the most marked relief from suffering, and rapid diminution of the tumors. In one case the application being left to the care of the nurse and patient, they continued it until the entire mass (nearly as large as a goose egg) was completely frozen; it sloughed off by the fourth day, the patient recovering without trouble, and not having since had the slightest return of the malady. Though successful in this case, I should not like to repeat the remedy. The vegetable astringents are frequently used with advantage in mild cases: In the last few years injections into the hemorrhoidal tumors have been employed with great success. Usually Carbolic Acid is used in the proportions of ʒi to ʒij, to ʒvj of Olive Oil, with the ordinary hypodermic syringe. The needle is introduced into the growth, and the injection thrown in; the patient is kept quiet for a few hours, and if there is much pain, cold is applied. But part of the hemorrhoids are injected at once if there are many. Sometimes there is considerable inflammation, even suppuration, but in the majority of cases there is but little irritation, and the hemorrhoids seems to shrink away and shrivel up. Prof. Howe has thought that Tincture of Thuja was better than the Carbolic Acid.

This operation is attended with but little risk, if the anatomy and pathology of hemorrhoids are remembered

In some cases, as when they have resisted the means above named, a radical cure may be effected by *ligation*, the only proper operation for this affection.

The operation is easily performed, the tumors being exposed and the extremity seized with toothed forceps, or a tenaculum, a waxed thread of saddlers' silk, is applied around the base, drawn tightly and tied in a double knot. Sometimes, where the base of the hæmorrhoid is large, it is necessary to transfix the tumor with a needle carrying a double thread; or, in some bad cases, crucially, having four threads, and tying the ends tightly, so as to include a portion in each ligature. After the application of the ligature, the patient should keep quiet until they separate, and if there is much heat and irritation, cold water may be used freely. The ligature should never be applied to external hæmorrhoids, unless the integument is freely excised, so that none of it will be included in the loop; neither should an internal pile ever be excised, or burned with caustics.

NEURALGIA OF THE RECTUM AND ANUS.

Neuralgia of the rectum and anus is not of unfrequent occurrence, and is especially worthy of notice, as being sympathetic of other and more serious affections. A person suffering pain usually imagines that he could bear it with more fortitude if it was located at some other point than the one affected, and yet there are some parts in which the pain seems more intolerable than others, for instance, of the ear, the testicle, or the eye: but of all pain that I have ever witnessed or experienced this is the hardest to bear.

We notice it in affections of the bladder and prostate gland in the male; in cancerous diseases of the pelvic viscera in both male and female; and in diseases of the uterus, ovaries and vagina in the female. In other cases we find it existing for a longer or shorter time without any apparent cause. It is characterized by sharp lancinating or tearing pains in the region of the anus, shooting upward to the loins, back genito-urinary organs, and in some cases to the hip joint, and down the thigh. In some cases defecation is very painful, as is also micturition, the urine being discharged in drops or jets, with a scalding sensation.

TREATMENT.—In many respects the treatment will be similar to that adopted in other cases of neuralgia. Thus, if dependent upon cold, we would use the spirit vapor bath, with a diaphoretic, as the Compound Powder of Ipecac and Opium, an alkaline diuretic and a mild cathartic. If periodic in its character, Sulphate of Quinia, in full doses, should be given and repeated as often as seemed necessary. If we can detect the lesion giving rise to it, our treatment should be directed to this, in the meantime palliating the pain.

Among the most efficient palliatives, is the use of the suppositories of Morphia, Belladonna, Stramonium, Tobacco, etc., the use of cold water, the vapor of Chloroform, Carbonic Acid Gas, both of which may be introduced into the rectum by a rubber tube connected with the retainer. Counter-irritation is sometimes efficient, as is also the external application of Aconite, Belladonna, Chloroform, etc. If the pain resists these means, it may almost invariably be controlled by the sub-cutaneous injection of one-eighth grain of Morphia in solution, repeated as often as necessary. Though it is impossible to rationally account for the result, experience has proven that these diseases may be radically cured by this means, when not amenable to any other treatment.

PERITONITIS.

The serous membrane lining the cavity of the abdomen, and investing the principal viscera, may be the seat of inflammation, either affecting but a part, or involving the whole membrane. As regards the causes of the affection, we find that it may be produced by cold, over-exertion, etc., as in the case of other inflammations; but it more frequently arises from disease of some organ or part receiving an investment from it, or from injuries. The inflammation may be sthenic, asthenic or chronic, though we usually see it as an acute inflammation, with marked constitutional disturbance. As before remarked, it is most generally confined to a small portion of the membrane, but what is most singular, is, that opposite surfaces are involved in the inflammation. Like other inflammations, it may terminate in resolution, frequently in effusion of plastic lymph, serum, etc., and formation of false membrane, or adhesions.

SYMPTOMS.—The symptoms of acute or sthenic peritonitis are well marked; usually commencing with a marked chill or rigor, high febrile action, with quick, hard pulse, hot, dry skin, furred tongue, headache, and arrest of the secretions as developed. The patient complains of sharp, lancinating or tearing pain in the part affected, or, if enteric, of the whole abdomen. There is exquisite tenderness on pressure, and the patient lies on the back and draws the thighs up, to take off the tension of the abdominal muscles. As the disease progresses, the pain becomes more acute and severe, the patient suffering intensely. The pulse is now wiry and very rapid, and the tenderness so exquisite that the patient can not even bear the weight of the bed-clothes. Tympanitis ensues, the abdomen being prominent, which also seems to increase the suffering. In from two to six days, effusion takes place, with an abatement of the pain. If the disease still progresses, there is marked prostration, with a dark-brownish tongue, sordes on the teeth, low muttering, or in some cases wild delirium, subsultus, jactitation, picking at the bed-clothes, and death.

In the sub-acute or asthenic form, it usually results from disease of some of the abdominal viscera. The pain is not so acute and exquisite as in the preceding case, but is well-defined and attended with marked tenderness on pressure. The fever is generally remittent in character, sometimes a hectic fever, with night sweats. The disturbance of the general health is very marked, and there is derangement of almost all the functions of the body. A considerable portion of the general symptoms will undoubtedly depend upon the visceral disease causing the peritonitis.

The chronic form of the disease is of rare occurrence. Usually associated with visceral disease, it is very difficult to separate the symptoms, and sometimes impossible to determine the existence of peritonitis until after death. Tenderness on pressure and evidence of local effusion are the most prominent symptoms, though we have frequently good reason to suspect the involvement of the serous membrane, from the aggravation of the symptoms and their disproportion to the original disease.

DIAGNOSIS.—The diagnosis of acute peritonitis is generally easy. The sharp, lancinating character of the pain, exquisite

tenderness on pressure, hard or wiry pulse, and marked constitutional disturbance, will serve to distinguish it from all other affections. In the sub-acute or chronic form of the disease it is more difficult to make a diagnosis; but the tenderness on pressure, sharp, lancinating, or tearing character of the pain, and greater constitutional disturbance than we would expect from the visceral disease, is usually sufficient.

PROGNOSIS.—The prognosis is usually favorable, unless complicated with other severe disease, or the result of injuries, operations, or perforation of the bowel.

POST-MORTEM EXAMINATION.—On examination, we find the serous membrane thickened, its vessels enlarged, and in acute cases, a rosy blush, or even marked redness. The free surface is roughened, and frequently covered with flakes of coagulable lymph, in some cases with a semi-purulent material, at others showing no evidence of effusion of lymph. If the disease has progressed for some time, more or less organization of the effusion will have taken place in the form of false membrane, or the formation of adhesions between contiguous surfaces. In the sub-acute and chronic form of the affection we may find the same adhesions; or the disease being more asthenic, there is a shreddy material attached to the free surface, or there is more or less of a dirty, semi-purulent collection in the peritoneal cavity.

TREATMENT.—In traumatic or puerperal peritonitis, and sometimes even in the idiopathic form of the disease, we are enabled to commence the treatment before the inflammation is fully developed, and in this stage we find it quite easy to control it. As a rule we will find evidences of putrescence in the discharges in both of the first cases, and the use of the right antiseptic and cleanliness may be sufficient to prevent an attack. I attach very great importance to the use of Chlorate of Potash when puerperal peritonitis is threatened, and to Sulphite of Soda and the local use of Salicylic Acid in traumatic peritonitis.

With the first appearance of abdominal pain and tenderness, we select the proper sedative, and such additional remedy as may be indicated. When the circulation is vigorous,

the pulse not small, I prefer Veratrum, but when it is small and wiry, Aconite. The Veratrum may sometimes be given in the old-fashioned full dose, so as to bring down the pulse in a few hours, but the Aconite is always used in moderate doses.

Bryonia is added to the sedative when the pulse is markedly vibratile, the pain exquisitely sharp, with flushing of the right cheek, and pain through the head from front to back. We use it in the following proportion—℞ Tincture Aconite or Veratrum gtt. x., Tincture Bryonia gtt. x., Water ℥iv; a teaspoonful every hour.

Rhus is the remedy when the pulse is small, stroke sharp, pain in the forehead, and tongue showing the reddened papillæ at tip. The pain in this case is frequently burning, and the patient complains of unusual heat of the surface. The dose will be the same as the Bryonia.

The Dioscorea may be given when the peritoneal investment of the intestine is involved, and the pain increased by the accumulation of gas. We add one or two drachms of the tincture to the sedative mixture.

Baptisia is the remedy where the tongue has a brown coat, the anterior part of it looking like raw beef; the skin sometimes having a dusky-red color. Ten drops are added to the sedative solution, and given in the usual doses.

A very unpleasant case shows the pallid tongue, remarkably dirty, with a very unpleasant taste in the mouth, and sense of nausea. In this we give full doses of Sulphite of Soda. In another one we find the tongue full, heavily coated at base, disgust and nausea, with fullness or oppression in the epigastrium. In this case a thorough emetic will give the speediest relief.

There is a case in which Podophyllin is a very certain remedy, though, as it would do great injury in some others, we wish to be very careful in noting the symptoms. All the tissues are full, and there is marked fullness of the superficial veins; the tongue is full and pretty uniformly coated. It may either be given in full or in small doses.

Gelseminum is a remedy in this case as in others, when we have the flushed face, bright eyes, and contracted pupils, with great restlessness. It may be used in the old-fashioned dose to obtain its full influence. In the advanced stage of the

disease, the dullness and hebetude, with inclination to sleep, will call for Belladonna.

With the use of the remedies named we will find the patient relieved, and may then think of diaphoretics and the alkaline diuretics to establish secretion, and small doses of Quinine to increase innervation.

As a local application we may use the hot pack, covered with oiled silk, the hot fomentations of hops or stramonium, or a mush or bran poultice. In some cases the patient can not bear the heat, and cold is very agreeable, when we may use the cold pack. In others we use chloroform counter-irritation, or if there is tympanitis, turpentine stupes.

The hypodermic injection of warm water is permissible in any case at any time, but the hypodermic use of morphia may only be used when the system is being influenced by the sedative remedies. If this is not observed, much harm may be done.

The bowels may be moved at first by Seidlitz powders, Citrate of Magnesia, or Bitartrate of Potash; or if this is not sufficient, it may be aided by a free enema of warm water.

In the subacute and chronic forms of the disease, the treatment will have to be adapted to each particular case, and will depend greatly upon the disease that it is associated with. As a general rule, the irritating plaster will be found to be the best local application, used as heretofore directed. Careful attention to the condition of the skin and kidneys, removing irritation of the stomach and bowels, and promoting digestion, with remedies appropriate to the removal of the associated disease, will be the outlines of treatment.

CHAPTER VI.

DISEASES OF THE URINARY APPARATUS.

The secretion of urine is one of the most important of the functions of the human body, as it is through this channel that the greater portion of the nitrogenized waste of the tissues gets out of the system. Waste or destruction of tissue is just as important in the animal economy as supply, or the nutrition of textures; and we find that the retention of this waste is more serious in its results than the want of material for nutrition. We will find hereafter that the urine contains elements that are poisonous to the human body, and that when retained in the blood in sufficient quantity, they exert the same influence that would follow the absorption of a narcotic poison. Further than this, we have already noticed, when considering the pathology of fever, that the nitrogenized material which is converted into urea and uric acid, may undergo such changes by a failure of the kidneys to remove it, as will set up a process of change in living blood, which will finally result in its death.

The urine consists, on an average, of water 1000 parts, solids 20 parts, the specific gravity averaging 1020. The proportion between the fluid and solid portions of the urine varies greatly in different persons, and in the same person at different periods of the day. Thus, a man may to-day void forty ounces of urine of a specific gravity of 1015, and to-morrow but twenty ounces of a specific gravity of 1030; and though the quantity of urine has varied one-half, the amount of solids, or the actual secretion, is the same in both cases. The amount of urine passed in twenty-four hours having been determined, and its average specific gravity ascertained, it is very easy to calculate the amount of solids in it. We are

not to suppose, however, that we have determined the amount of secretion, as the specific gravity may be changed by the presence of foreign elements in it, as sugar, albumen, mucus, and the salts of lime, potash and soda, etc.

The solids of the urine are composed of *urea*, *uric acid*, *fixed salts*, organic matters, and volatile saline combinations. The amount excreted during the twenty-four hours, in a healthy man, being of urea, 270 grains, uric acid 76 grains, fixed salts 150 grains, organic matters and volatile saline constituents 106 grains, or a total of 603.6 grains.

ACUTE NEPHRITIS.

Acute inflammation of the kidneys is not of frequent occurrence, as they are situated so deeply, and so well protected, as not to suffer from cold or atmospheric changes, or from injury, and their circulation is so direct and free, that they are not as easily affected by derangements of the general circulation as other parts. When it does occur, it is produced by the usual causes giving rise to inflammation, as cold, injuries, local irritation, the condition of the blood, the sudden arrest of the accustomed discharges, too long retention of urine, the extension of inflammation from the lower parts of the urinary apparatus, etc. Usually but one organ is affected, but in some cases both are involved at one time, rendering the disease very serious.

Symptoms.—Inflammation of the kidney usually commences with a well marked rigor, though sometimes but slight chilly sensations precede the fever. The febrile action is not high at first, but frequently becomes very intense in the course of two or three days. With the appearance of the chill, the patient complains of a tensive and tearing pain in the loins, which is but little increased by pressure. By the second day, this pain has become a marked feature, and now extends down to the hypogastric region, in the course of the ureter, to the testes, causing retraction, and sometimes to the penis. This pain is increased by straining at stool, and during micturition. The urine, at first but little changed, is now small in quantity, passed with difficulty, and of a dark-red, or reddish-brown color, and frequently tinged with blood. If both

kidneys are affected, the urine will be very scanty and high colored, and passed with difficulty. In a later stage of the disease if the calyces and pelvis of the kidney are affected, we will observe more or less mucus or muco-pus in the urine.

The constitutional disturbance becomes marked by the second day. There is frequently nausea and vomiting, especially when anything in the slightest degree nauseous or irritant is taken upon the stomach; the bowels are obstinately constipated, and acted on with difficulty; the skin dry and harsh, the pulse hard and frequent, and at first great irritation, restlessness, and entire inability to sleep; but if the secretion becomes markedly scant, as from disease of both kidneys, coma, or low muttering delirium, sooner or later makes its appearance. If but one kidney is involved, we will find, if the disease progresses, without being controlled by treatment, that the fever assumes a typhoid or asthenic character by the seventh or tenth day, with dark furred tongue, sordes on the teeth, typhomania, etc. If both kidneys are affected, the disease will terminate fatally before this, if not arrested by medicine.

DIAGNOSIS.—We diagnose acute nephritis by the deep seated pain in the loins, the scanty and high-colored urine, pain passing in the course of the ureter to the hypogastric region and testicles, and the marked constitutional disturbance.

PROGNOSIS.—If but one kidney is involved, the prognosis is favorable; if both, it is doubtful.

POST-MORTEM EXAMINATION.—Dissection reveals the size of the kidney increased, if its entire structure has been involved; if but part, the enlargement will be confined to it. The inflamed part is of a deep red color before the formation of pus, sometimes brownish and of an ecchymosed appearance. If pus is formed, we will find it mottled with gray, the grayish points not being larger than a pin's head, surrounded by the brownish-red tissue. In some cases there are accumulations of pus, and marked softening of the organ, showing a great depression of vitality.

TREATMENT.—With a full pulse, flushed face, and irritation of the nervous system, we put the patient upon the use of—

℞ Tinct. Veratrum gtt. x. to xx, Tinct. Gelseminum ℥ss to ℥j., Water ℥iv. If the pulse is small, Aconite may be used in place of the Veratrum. With the sharp stroke of pulse, pinched features, and frontal pain, we use the Rhus in place of the Gelseminum; and in the advanced stages of the disease, pus being found in the urine, and very marked contraction of tissues about the base of the brain, it becomes a prominent remedy. Viburnum is indicated when there is great tenesmus, and Eryngium when there is much burning in the bladder. We use Belladonna when there is dullness, inclination to sleep, or coma.

In addition to these means, which should be very carefully selected, we may add the Baptisia, if the tongue grows brown, and sordes appear about the teeth. The bowels may be moved with fluid extract of Jalap and Senna.

To aid the action of these remedies we will find it advantageous to use the hot sitz bath, or, as I have sometimes done, sit the patient in a tub of hot water, put his feet in a bucket of hot Mustard water, with a blanket drawn closely around the whole. Previous to this, it is well enough to apply three or four cups to the region of the kidneys, well drawn and scarified, and especially is this the case if both kidneys are involved. The patient being placed in bed after the bath, hot fomentations may be assiduously applied until relief is obtained. In some rare cases, we might find the wet bandage useful, but, as a general rule, the hot applications are best.

Until the acuteness of the symptoms has passed off in some measure, no diuretic is admissible; but as soon as the bowels are freely opened, and the skin is slightly softened, they may be used. The remedies should be very mild and unirritating, as an infusion of Althæa, Verbascum, Apium, Galium, Polytrichum, etc. As soon as the secretion becomes free, we can change these for the tonic diuretics, as the Hydrangea, Agrimonia, Collinsonia, Uva Ursi, etc. If there should be hemorrhage from the urinary apparatus, Gallic Acid may be given with the greatest confidence.

As the disease progresses, we obviate to some extent the bad effects of retained urine by keeping the bowels open, and the secretion from the skin free by the use of warm baths, and the internal-administration of diaphoretics. Hydrochlorate of Ammonia, with Chlorate of Potash, are favorite remedies

with me to counteract the influence of urea upon the system. Quinia may be used with advantage to control febrile action, after the secretion of urine has become tolerably free, but previous to this it is rather injurious than otherwise. Opium may be used in cases where there is no evidence of uræmia, but must be sedulously avoided if there is. Alcoholic stimulants are always objectionable.

CHRONIC NEPHRITIS.

Chronic inflammation of the kidneys is one of the most insidious of diseases, and in this lies its danger. It is caused by colds, injuries, strains, irritating diuretics administered for other diseases, and the extension of inflammation from the urinary organs below. It is most frequently confined to one kidney, though it sometimes attacks both.

SYMPTOMS.—In sub-acute cases the patient has a marked sensation of soreness in the region of the kidney, with slight soreness on deep pressure; the pain passes in the course of the ureter, giving rise to more or less irritation of the bladder, retraction of the testicle, and in some cases pain in the hips. The urine is scanty, and of a dusky-red or brownish color, and causes more or less irritation in its passage. The bowels are constipated; the tongue dry, slightly coated with white, and fissured; the appetite is poor; the skin dry and harsh; there is loss of flesh and strength, with dullness and hebetude during the day, and slight restlessness at night. Occasionally there is an obscure pain in the after part of the day, or in some cases it is a marked remittent, there being some fever all the time. These symptoms may continue for weeks, the patient becoming more and more prostrate, and finally, suppuration ensuing, we have a low form of ataxic fever, which terminates the life of the patient in a few days.

Chronic inflammation of the kidney is not so well marked at first. There is usually an unpleasant sensation of weight, with occasional soreness in the loins, worse on some days than on others, and increased on active exertion. The urine may or may not be scanty at first, but becomes so as the disease progresses, is usually high colored, and produces more or less irritation when passed, usually as a burning sensation along

the urethra. The testicles are sometimes retracted, at others pendulous; but frequently the patient has recurring pains in them or in the penis. In many cases we will find the patient complaining of weakness of the back, in the lumbar and lower dorsal region; sometimes pain with tenderness on pressure. The bowels are obstinately constipated in a majority of cases, and there is occasional nausea and vomiting. The mouth is dry and parched, the tongue hard, harsh, slightly coated white and more or less deeply fissured; if there is any one symptom pathognomonic of the disease, it is this dry and fissured condition of the tongue.

These symptoms continuing, the patient gradually loses flesh and strength, though not confined to the bed. He may also, at two or three different times, have exacerbations, the inflammation assuming a sub-acute form, but yielding readily to the use of appropriate means. In this way weeks, or even months, pass, the patient, though constantly failing, lives in hopes of speedy recovery. Finally, acute pain occurs in the region of the kidneys, and extends down to the lower portion of the urinary apparatus; the urine is very scant, and contains pus and blood; the nausea is constant and vomiting frequent; the pulse feeble, wiry and very frequent, and a marked and alarming torpor of the nervous system, which passes rapidly into deep coma, and the patient dies the second or third day of the attack, and sometimes within the first twenty-four hours.

DIAGNOSIS.—We diagnose chronic inflammation of the kidneys by the locality of the pain, its extension to the hypogastric region, and the testicles; by the weakness of the back, the derangement of the urinary secretion, and the unpleasant sensations on passing water; by the attendant dryness of the skin, and obstinate constipation of the bowels; by the loss of flesh and strength, and the inefficiency of tonics and stimulants to increase it; and lastly by the serious disturbance of the nervous system, and the peculiar and marked appearance of the tongue.

PROGNOSIS.—If recognized in an early stage, the treatment is very successful; but if postponed until marked structural change takes place, or the vitality of the system is much im-

paired, the prognosis is doubtful. In the final attack but very little hope of relief should be held out.

POST-MORTEM EXAMINATION.—The changes discovered in the kidneys after death are of the most opposite characters Sometimes the organ is atrophied, and seems shrunk and shriveled; the structure appears to be greatly lacking in blood, and the internal structures indurated, and of a mottled appearance. In other cases the organ is markedly increased in size, the surface rugose, and the internal structure dark, and much softened. Occasionally there is deposit of purulent material throughout the kidney, but more frequently we find the mucous membrane of the pelvis and calyces thickened and covered with a muco-purulent secretion.

TREATMENT.—In the treatment of chronic nephritis we must be satisfied with slow amendment, as it is not possible for the disordered condition of the system to be removed at once. The principal point in the treatment is to restore the secretions of the bowels and skin, and thus relieve the inflamed kidneys, and the oppression of the system from retained urea. To correct the constipation of the bowels is a work of difficulty. I prescribe, in some cases, an infusion of Leptandra Virginica, in doses sufficient to produce two evacuations daily. Again, we may use:

℞ Sulphur Subl., ʒij.
Phosphate of Soda, ʒss.
Podophyllin, grs. v.
Extract of Hyoscyamus, ʒss. M.

Make ten powders, or form into an electuary with Honey or Simple Syrup, or into lozenges as heretofore directed; or a pill, composed of:

℞ Podophyllin,
Extract of Leptandra,
Aloes,
Hydrastin,
Extract of Hyoscyamus, aa. ʒj.
Extract of Nux Vomica, gr. v. M.

Make three-grain pills, the dose being one, morning, noon and night. These are the proportions I usually employ, but they can be varied to suit the indications of the case.

If there is nausea and vomiting when first called, I commence the treatment with a thorough emetic; and if the necessity seems imminent, evacuate the bowels with the Com-

pound Powder of Jalap and Senna and Bitartrate of Potash. Following this, I direct:

℞ Tincture of Aconite.
Tincture of Veratrum, aa. gtts. x.
Fluid Extract of Asclepias, ʒj.
Water, ʒiij. M.

In doses of a teaspoonful every hour, until it produces an impression on the system, and afterward every two, three or four hours. This should be assisted by an appropriate bath, sometimes alkaline, at others stimulant or tonic, and warm or cold, as appears best suited to the patient. It should be used as often as it seems of benefit, and with the friction of a coarse towel or flesh-brush.

Among the remedies directed to the kidneys we will find an infusion of the Hair-cap Moss about the best, where there is much irritation; or the Apium or Eryngium may be substituted in some cases. We follow these, as the irritation subsides, with the Agrimonia, Hydrangea, Collinsonia, Uva Ursi, Buchu, etc. If there is considerable mucous secretion, which continues after the severer symptoms have passed off, we may try the Copaiba, Hamamelis, or even the Tincture of Cantharides, in small doses. The Bromide of Potash, with Santonine, equal parts, in doses of four grains four or five times a day, is useful. The Tincture of Muriate of Iron may also be used in doses of from ten to thirty drops three or four times a day. As an external application, I prefer the irritating plaster, applied over the diseased part, to all other local applications, though if the patient should object to it, we might substitute dry cupping or the application of Croton Oil. The pulverized Podophyllum moistened with warm water, and applied once or twice a day for an hour, will sometimes answer a good purpose, as will also the Vinegar bandage used continuously.

Tonics and stimulants are not admissible in the early part of the treatment, in fact they are injurious until secretion is fully established from the kidneys; then they may be given as in other forms of chronic disease. I am satisfied much injury has resulted from their improper use in these cases. The alkaline diuretics are also excluded at this time, as they are very apt to excite such an irritation of the kidneys as will still further arrest secretion instead of increasing it.

GRANULAR DISEASE OF THE KIDNEYS.

Bright's Disease, or Albuminuria, may occur at any period of life, though of more frequent occurrence about middle age. If it appears in the young, it is most generally the result of the eruptive fevers, particularly scarlatina. It may arise from any cause that will induce congestion of the kidney and continue it for a considerable time, as the first appearance of albumen in the urine may be regarded as an effort of the kidney to relieve itself of congestion. This diseased function gives rise to structural change, which unfits the organs for eliminating the normal nitrogenized secretion, and the last evidence of its secreting power is found in the separation of water and albumen from the blood. The disease may be either acute or chronic, the last being by far the most frequent.

SYMPTOMS OF ACUTE ALBUMINURIA.—Occurring almost always after the eruptive fevers, or exposure to cold by which the surface is suddenly chilled; it commences generally with a well-defined chill, symptomatic fever follows, the pulse being hard and frequent, the skin hot, dry and constricted, the tongue coated white, the mouth dry, frequently nausea and vomiting, bowels constipated, pain in the back, and marked restlessness and nervous irritation. With these symptoms the patient complains of a sense of weight and constriction in the region of the kidneys, never, as is said, extending to or causing retraction of the testicles. The pain may be confined to one side, but one kidney being affected, or it may be equally in both sides.

With the occurrence of these symptoms the urine becomes scant, almost suppressed, and highly albuminous, of a reddish color, and occasionally bloody. Its specific gravity is almost always above that of healthy urine, and it gives an acid reaction. When allowed to rest, it deposits a filamentous substance, and when examined with the microscope it will present blood-globules, mucus, epithelium, and in some cases, complete casts of the urinary tubules. A dirty-white sediment is frequently deposited from the urine, not unlike mucus, and easily diffused by agitation. The urine is frequently passed with difficulty, and sometimes with pain, the calls to urinate being frequent and distressing.

In the course of the second or third day dropsical symptoms make their appearance, most frequently as anasarca of the eyelids, face, and at last of the whole body. The skin at this time is hot, and does not pit except upon firm pressure. If properly treated, in a majority of cases, we find that the symptoms are much mitigated in the first three or four days, and the disease terminates in recovery by the twelfth to the fifteenth day. In other cases, coma comes on by the second, third or fourth day, and the disease terminates fatally within the first week. Occasionally convulsions appear, and continue until the patient is exhausted. In other cases the disease seems to give way slowly until it reaches the chronic stage, in which it continues.

SYMPTOMS OF CHRONIC ALBUMINURIA.—There are no marked symptoms in the early stage of the disease to arrest the attention of the patient or the physician. It is noticed that the patient is gradually losing flesh and strength, and has a cachectic appearance. The skin is dry and somewhat harsh, and the patient does not perspire on active exertion as usual. The bowels are constipated, or in some cases irregular, diarrhœa alternating with constipation; the appetite is variable, and there are more or less dyspeptic symptoms and headache. These symptoms and loss of strength at last becoming so marked, cause the patient to consult a physician, it may be months, or sometimes two or three years from the commencement of the indisposition. On close questioning, we will find that the patient has a weakness of the back, probably a sense of fullness in the loins, and his attention has been drawn to slight difficulty in passing urine, and some alterations in its physical properties. In all such cases the careful physician will institute an examination to determine whether it is normal or not, and the character of its constituents.

We determine the presence of albumen by the fact that it coagulates on the application of heat, and the addition of a small quantity of nitric acid, and though other material might be thrown down by heat or acid, yet none other by both. If we desire to be accurate, a small portion of urine should be placed in a small test-tube and heated over a spirit lamp; but if this is not convenient, a common iron spoon may be filled half-full, and heated over a common lamp or candle. Dr.

Bird recommends that the extreme end of the bowl be placed over the flame, and in this way the thin layer of urine near the end of the spoon soon boils, and the white striæ of this coagulated albumen gradually diffuses itself through the cooler liquid; in this way we can detect a very small quantity of this substance. The addition of a drop of Nitric Acid to albuminous urine immediately produces a copious coagulation of albumen. If but a small quantity is present, the opacity will disappear on agitation, but may be reproduced by the addition of a second drop. Both these tests should be employed, for, as before remarked, we may be deceived by one, but can not very easily with the two.

As the disease progresses the patient becomes very feeble and cachectic, and frequently dropsical. The appetite is poor, digestion is feeble; the circulation weak; there is great emaciation; hectic fever appears in the evening, followed by night sweats; the patient dying of gradual marasmus, or some other affection that is set up owing to the enfeebled condition of the system; or uræmia occurs, and carries the patient off in a very short time. Occasionally, in the later stages, the urine is scanty and but slightly albuminous, so that there is some difficulty in determining the cause of the constitutional disturbance.

DIAGNOSIS.—In the acute form of the disease, the symptoms usually point more or less directly to the kidneys as the seat of the disease, but in the chronic form there may have been nothing to direct the patient's attention to it. In all cases of marked debility or cachexia, if we wish to determine the cause, we make our diagnosis by exclusion; in this way we finally arrive at the truth. But in addition, in this case, we would gain the desired end easier, because this is one of the most important functions, and one that we are always anxious about. Having our attention directed to the kidneys as the seat of the disease, an examination of the urine as heretofore named will at once determine the cause of the difficulty with great positiveness.

PROGNOSIS.—In the early stage of Bright's disease, the affection is amenable to treatment, as are also many cases where the disease has progressed for some time; but at a later period little can be done. We may determine principally by the ex-

tent of the impairment of the functions of digestion and assimilation.

POST-MORTEM EXAMINATION.—In the early stage of Bright's disease, the kidneys are found enlarged, their consistence greater, and of a deeper color than usual. On dividing the kidney, the cortical substance is observed to be tumefied, and to such an extent as to press upon the malphigian pyramid. The malphigian corpuscles are injected, and there is more or less albuminous deposit and commencing granulation. Where the disease is fully developed, the kidney, when divided from its convex to its concave side, presents a pale yellow surface mottled with white as the cortical substance, which is very markedly contrasted with the red of the tubular structure. The cortical substance is enlarged, and seems to occupy more room than in health, especially in its prolongations between the pyramids. If the incisions are carefully made, the cortical substance seems to consist in considerable part of minute granulations, these being the changed malphigian glands enlarged by albuminous infiltration. In some rare cases, the kidneys are reduced in size, and seem to be hard and nodulated, though in these cases, the granulations are not so distinct.

TREATMENT.—We treat acute albuminuria very much as we would an acute nephritis. Selecting the proper sedative—Aconite or Veratrum—we add the Macrotys, Rhus, Bryonia, Gelseminum, Eryngium, or Belladonna, as indicated. In some cases the bowels may be moved briskly at first, but in the majority we will get along better without. Dry cups may be applied over the loins, and then follow with hot fomentations. As soon as the more acute symptoms have passed away, or even at first, the Apocynum is added to the sedative for the removal of the dropsy; the inunction of Quinine being employed to restore secretion from the skin.

In Bright's disease we have a lesion of nutrition—degeneration—and this, and not the simple presence of albumen in the urine, must be kept in mind. In many cases we will find wrongs of the circulation and innervation of the kidneys, which may be corrected by remedies. Thus we have a class of cases in which the subacute inflammation, or at least irri-

tation, is marked. This patient is benefited by the continued use of Veratrum, Aconite or Gelseminum, associated with any other that may be indicated, as the Rhus, Bryonia, Macrotys, Belladonna, Ergot, Apis, etc. Associated with these are remedies which establish secretion from the bowels and skin, and relieve the kidneys of overwork.

In some cases we find the urine alkaline, and we supply the acids, Nitric Acid being sometimes specially indicated. Again there are cases in which it is excessively acid, and the patient is benefitted by the continued use of Bicarbonate of Soda. Or when there is continued irritation of the urinary passages, the Benzoate of Lithia, in doses of one grain three or four times a day, may be given.

In some cases counter-irritation is of service. Temporary relief may be afforded by dry cupping the loins; the irritating plaster may occasionally be used with advantage; and the hot vinegar pack at night, with sponging and brisk frictions in the morning, is occasionally markedly beneficial.

In the chronic form of the disease the same attention must be paid to the secretions. The warm bath is useful, and must be associated with the wearing of flannel and the external use of stimulants to prevent exhaustion of the skin. While it is necessary to have the bowels open, we should be extremely careful that they are not acted on to such an extent as to produce exhaustion, or that an irritation of the intestinal mucous membrane is not excited that will prevent proper digestion. Counter-irritation is very important, and may be produced with the irritating plaster, or by the use of cups to the loins.

Dr. Sacquet employed the Perchloride of Iron and Ergot in albuminuria with good results. The cases observed were men of bad constitution, marked by former unfavorable hygienic conditions. The dropsy, in all the cases, at first confined to the face, had successively attacked the limbs and peritoneum. The remedies were given in progressive doses, beginning with twenty drops of tincture of the Perchloride, and nine grains of Ergot. Under this treatment the albumen of the urine rapidly began to diminish; in ten days it disappeared completely, and in ten days afterward the different dropsical effusions disappeared also

Now we turn our attention to the double function of waste and repair, by which we may expect to get a better nutrition

of tissue, and arrest the process of degeneration. Evidently we can get no assistance from the kidneys in removing old tissue; on the contrary, we wish to give these organs rest. But we stimulate the skin by the use of appropriate baths, stimulant or Quinine inunctions, and increased secretion from the bowels by small doses of Podophyllin, or other special remedies, associated with the bitter tonics. The process of combustion needs looking after, and we have the patient use Sulphur, Phosphorus, Cod Oil, Arsenic, or other remedies of this class as indicated, and such exercise as will call into action the respiratory apparatus.

The digestive organs are put in good condition to do their work, and we see that the patient has such food and restoratives as will give good blood. Intemperance in eating and drinking is especially to be avoided, though a rich and nutritious diet is sometimes better than a poor and restricted one. Continence is espeeially to be enjoined, as over sexual indulgence is not only a cause of the disease, but is pretty sure to increase it.

HEMATURIA.

Hemorrhage from the kidneys may result from injuries, especially falls or blows upon the loins, from inflammation and from the presence of a calculus in the kidney. It is very generally attended with a sense of fullness in the region of these organs, and sometimes a dull, heavy, aching pain. In almost all cases we find a disposition to urinate very frequently, and more or less trouble and pain in its passage. Sometimes the suffering from this cause is extreme, especially if the hemorrhage is the result of injury. Usually there is also very great prostration, if an injury should be sufficient to cause bloody urine.

A *passive renal hemorrhage* sometimes precedes Bright's disease, and according to Dr. Crooke, is marked by the following symptoms: "A pallid complexion, of a dirty-white or muddy color; with dilated pupils; occasional headache and singing in the ears; the tongue is large, flabby and furred, the edges thereof indented by the teeth; the bowels are open and loose; there is much flatulence and nausea, with irregular appetite; palpitation is frequent; the surface of the body is

cool; the skin soft and relaxed, but dry; the pulse full, soft and bounding, or small and soft, putting on the former condition on change of posture; there is gradual but progressive emaciation; irritability and gloominess of temper, with great disinclination to exertion, either bodily or mental." The local symptoms are usually a sense of weight and fullness in the loins, with a dull, obscure pain, sometimes referable to the penis, testicle, hip, inside of the thighs or perineum.

DIAGNOSIS.—In hemorrhage, the result of injury, as well as in some cases of acute hemorrhage from other causes, the presence of blood will be very distinct—in fact, in some cases, very little but blood seems to be passed. According to Dr. Bird, "When blood is effused in any considerable quantity in the urine, it coagulates into masses like black currant jelly; and when it partly coagulates in the bladder, linear masses of clot of nearly the shape of leeches, are passed from the urethra, often to the great distress of the patient, by producing temporary suppression of the urine. Even after this coagulation, the urine retains a port wine color, and the microscope detects an abundance of entire blood corpuscles; although in a great proportion of them the investing membranes have given way, and the colored contents become diffused through the urine. If too small a quantity of blood has been effused to give a decided red color to the urine, it will be frequently found possessing merely a dirty, dingy hue; less frequently being of a pink color, like the washings of flesh."

TREATMENT.—In acute hematuria the patient should maintain the recumbent position, and keep as quiet as possible. The cold, wet bandage may be applied around the abdomen, the patient being covered warmly with blankets, and a bottle of hot water placed at the feet. If there is excitation of the pulse, as there generally is in these cases when not the result of injury, I should administer Tincture of Veratrum and Digitalis, until its influence was marked. Associated with this, Gallic Acid may be given in doses of five grains every hour or two, or, if the hemorrhage is severe, every fifteen or thirty minutes. No agent has such a marked effect in my practice.

In hemorrhage from injury it is essential many times that vigorous means be used to overcome prostration and deter-

mine the blood to the surface and extremities. For this purpose we may substitute stimulant applications for the wet bandage, and apply cloths wrung out of hot Mustard water to the lower extremities. Brandy may be given in moderate quantities if it seems necessary, and small doses of Carbonate of Ammonia. To arrest the hemorrhage, give Gallic Acid in doses of five grains, frequently repeated, associated with from three to ten drops of Oil of Erigeron.

I believe that Carbo-veg., second decimal trituration, will be found the best remedy for passive hemorrhage. It may be given in doses of one grain every two or three hours. Or in place of this the Ergot may be used—the tincture in doses of five to ten drops, and the powder in doses of as many grains, every three hours. If there is nausea with irritation of the stomach, the infusion of Peach bark, before mentioned, will be found an admirable remedy; and in addition, we may use Creosote in doses of one drop, made into a pill with two grains of Rhubarb, and half a grain of Hydrastine. Gallic Acid is one of our most efficient remedies in arresting hemorrhage, given in doses of five grains every two, three or four hours. Oil of Erigeron seems to answer a good purpose, but in many cases causes irritation of the stomach. Turpentine has been used with success in these cases, in doses of from ten to thirty drops. When much irritation of the urinary passages exists, we may use Santonin in small doses, triturated with white Sugar, or, if confined principally to the bladder and urethra, an Opium injection or suppository will be of advantage.

DIABETES.

By diabetes we understand a condition in which there is an an excess of urine passed. The forms recognized by most writers are, diabetes insipidus and diabetes mellitus; the first being simply excessive in quantity, but without change in its constituents, though of low specific gravity; while the last is not only excessive in quantity, but contains an abnormal constituent—grape sugar. The causes of both forms of diabetes are very obscure, as is also the pathology of the affection. The first form is doubtless induced by any cause that would induce long-continued excitation of the organs, resulting in

an enfeebled and sluggish circulation. The second is no doubt partially a disease of digestion, of assimilation, and of the liver and lungs.

SYMPTOMS.--*Diabetes insipidus* may come on slowly and gradually, or its advent may be sudden. The patient's attention is directed first to the increased frequency of the calls to micturate, and especially by having to get up at night to relieve the bladder; then that the urine is passed in large quantities at a time, and that it is very clear. At the same time he feels a sense of lassitude and languor, with pain in the back, and considerable thirst; the appetite is somewhat impaired, digestion imperfect, the skin soft and doughy, or dry and constricted. These symptoms may make their appearance so as to be marked in a couple of weeks, or they may be months in their development. Continuing, it may result in diabetes mellitus, or, by enfeebling the system, predispose to severe cachectic affection.

Diabetes mellitus may come on slowly or rapidly. In some cases months will have passed before the patient thinks his condition so serious as to demand the assistance of a physician; but in a majority, from four to eight weeks is sufficient for the full development of the affection. It comes on insidiously, without a pain or an ache; or any symptom that could be called disagreeable. The patient notices that he is losing flesh and strength every day, and is becoming so feeble that it is with difficulty that he is able to attend to his business, and at the same time that he eats nearly as much as usual. His attention is called to the frequent calls to pass water, and especially that he has to rise during the night, and that the amount in the vessel in the morning is very large. These symptoms continue to increase until the patient becomes very feeble and thin in flesh, and is scarcely able to get about, being confined to the room the greater part of the time, and still there is no suffering. The thirst is usually a very marked symptom, the patient having an almost constant desire for, and drinking large quantities of fluids.

As the disease progresses toward a fatal termination, we observe hectic fever in the afternoon, with night sweats. The thirst still continues and is frequently intense; but the appetite is much impaired and capricious. Sometimes phthisis

sets in and runs its course rapidly; at others the patient is seized with a colliquative diarrhœa; and in others the kidneys fail to remove the necessary amount of urea, and the patient dies of uræmic coma.

Bernard has proven conclusively that sugar is a normal secretion of the liver, and that, by irritating the eighth pair of nerves at their origin in the fourth ventricle, he could markedly increase its quantity. That it does not exist in the general circulation in a state of health, though constantly secreted, is explained by its rapid decomposition and excre- from the lungs. But if secreted in large quantity, and in a condition in which the lungs do not act with normal power, it would then remain in the blood, but being foreign to it, would be excreted by the kidneys, giving rise to diabetes. We may then conclude that diabetes is dependent upon increased hepatic action, at least so far as the formation of sugar is concerned, and deficient pulmonary action. This last is borne out by the fact that diabetic patients usually die phthisical. I have no doubt that there is also some derangement of the blood, probably dating back to the digestive process, as the secretion of the liver, according to Bernard, is not sugar, but a substance similar to starch, and which requires a peculiar ferment to produce the transformation.

DIAGNOSIS.—Diabetes is known to exist, by the large quantity of water passed daily, and by the symptoms of emaciation and debility which attend it. To determine whether it is diabetes insipidus or mellitus, an examination of the urine must be made. The urine will usually be found of high specific gravity, 1030 to, sometimes, 1040, though occasionally it may not exceed 1020, and may sink to 1010. Barnes' test is the one most frequently resorted to, to determine the presence of sugar: "Place in a test-tube about two drachms of the suspected urine, and add nearly half its bulk of Liquor Potassæ. Heat the whole over a spirit lamp, and allow active ebullition to continue for a minute or two; the previously pale urine will become of an orange-brown, or even bistre tint, according to the proportion of sugar present. The subsequent addition of an acid generally causes the evolution of an odor of boiling molasses." The only source of error in this test is, that the solution of Potash employed may contain

lead, in which case, uniting with the sulphur of the urine, it would give rise to very similar change of color; hence the solution should be known to be pure, and kept in green glass bottles free from lead. A very simple method of treating urine is to put a small portion in a bright iron spoon, and evaporate it over a spirit lamp; if sugar is present, it will give the iron a peculiar reddish-brown hue, and sometimes the smell of caramel will be very apparent. If allowed to stand in a warm place, a scum forms upon the surface, looking as if flour had been dusted upon it; if this is examined with a microscope, it will be found to consist of jointed confervoid growths and smaller cells; this is the *torula cerevisiæ*. Another fact worthy of notice is, that saccharine urine never possesses the putrid smell of the decomposing urine of health, no matter how long it may stand; this is accounted for on the supposition that alcohol is generated by the fermentation of the saccharine matter.

PROGNOSIS.—The prognosis in diabetes insipidus is very favorable, but in diabetes mellitus it should be very guarded. There is no doubt in my mind that a majority of patients will die of the disease; some will recover perfectly.

POST MORTEM EXAMINATION.—In many cases, no pathological lesions exist that would give the slightest assistance in forming an opinion of the pathology of the disease; in fact, no lesion is found constantly, as in some other forms of disease. The kidneys have been found smaller than usual, and increased in size, but of greater or less density, of darker color and blanched, but in a majority of cases very nearly natural, with a slightly increased turgescence and enlargement of the blood-vessels. The liver has more frequently been found diseased, if we are to believe writers on this subject, but some have been unable to determine any change. The lungs usually suffer to some extent in the latter stages of the disease, but the lesions are those of phthisis, or a low form of inflammation, and have no relation to the diabetes further than they are induced by the debility produced by that disease.

TREATMENT.—The treatment of Diabetes insipidus is generally simple and very positive. In many cases, the application of a Belladonna plaster across the loins, with the internal admin-

istration of the Compound Tonic Mixture, or other tonics, will be found sufficient. Or if there is a free circulation, the use of Aconite and Belladonna in the usual doses, may precede the use of the tonic.

When there are frequent attacks, we will find the use of some of the tonic and astringent diuretics useful. The Achillea, Hydrangea, Collinsonia and Hamamelis, are good remedies. Tincture of Phosphorus sometimes answers an excellent purpose, and may be alternated with these.

The treatment of diabetes mellitus is not as successful as might be desired, and is almost entirely empirical. It is claimed by most writers that a diet almost exclusively animal, so as to avoid to as great an extent as possible the material for the formation of sugar, is indispensable. While satisfied that this is good treatment, I doubt very much the correctness of the reasoning. I am of the opinion that the stronger the diet the better the patient gets along, and am thus in the habit of giving the patient freely of ale, porter or beer, and a diet of eggs, beef, mutton-chop or game, with milk and bread and butter. If the appetite is impaired, and evidence of want of tone of the alimentary canal, I use a tonic combination as follows:

℞ Quinia Sulphas, gr. xxx.
Hydrastin, gr. xx.
Extract of Nux Vomica, gr. ij.
Extract of Xanthoxylum, gr. x.
Sulphuric Acid, q. s. M.

Make twenty pills, of which the patient may take one four times a day. As a continuous tonic and stimulant, I like the action of Collinsonia, given in the form of tincture, combined with Simple Syrup. The only two cases I ever cured had, in addition to these means, one drachm of Gallic Acid daily.

I like the theory of Dr. Inman, and to some extent, the practice; he was guided by the following considerations:

"1. The liver naturally produces sugar in a definite quantity. In diabetes there is an excess of sugar, and we may fairly infer that it comes from the liver. Opium has a decided effect in diminishing the bile-producing or secreting function of the liver, and it is reasonable to suppose that it will reduce the sugar-forming function. Experience has long told us that no single remedy in diabetes has been so efficacious in diminishing the quantity, etc., of urine passed, as Opium. Opium, therefore, should be an ingredient of the treatment.

"2. Again, Bernard has shown that the liver makes sugar, no matter what is the nature of the food employed. Dr. Budd has shown that some patients at least, may be benefited by saccharine food. But my patients did not long for sugar; and they did not enjoy their ordinary food; consequently I neither restricted them to non-saccharine or non-amylaceous diet, nor prescribe unusual quantities of sugar. They were to have the ordinary full diet of the hospital, but more in quantity if they chose, either of bread, meat or potatoes.

"3. Again, it seems to be clear, that in diabetes, there was debility implicating more or less the whole system; that there was danger of death by consumption; that the digestive powers, notwithstanding their apparent energy, must be impaired; at any rate that Opium was liable to disorder the stomach, and that it could be tolerated in larger quantity, if combined with Quinine. The result of these convictions was the following prescription for a pill:

℞ Opium, gr. j.
Quinine, gr. ij. M.

To be taken every four hours. Full house diet, with Porter daily."

A great many remedies have been recommended in diabetes, the more noted of which may be named. The Tincture of Cantharides has been pretty extensively employed in this country; it should be commenced in doses of ten drops every three hours in mucilage, and may be gradually increased up to thirty drops. Ammonia has been strongly recommended: Dr. Barlow gave the Sesqui-carbonate in doses of five grains every three hours; M. Bouchardat, a mixture of Carbonate of Ammonia, 77 grains; Rum, 310 grains; Water, 1,550 grains; one-third to be taken half an hour before each meal. Liquor Ammonia has been recommended by several. Dr. Colles gave a mixture of this and Lime water. The Permanganate of Potash has been employed, and it is observed with good results, as has also the Sub-acetate of Lead. All of the astringent diuretics have been used, and each has been lauded as a curative, but without any just grounds; in fact, I am inclined to believe that they are more frequently hurtful than otherwise. Remedies that act on the liver, as the Sanguinaria, have been recommended and employed to considerable extent, but so far as I can learn, without advantage.

Dry cupping to the spine, with the use of a salt sponge bath and brisk friction, are very important elements of the treatment. The patient should wear soft flannel next to the skin, and keep the extremities dry and warm. Exercise should be taken in the open air to as great an extent as possible short of fatigue, and the room well aired and sunned if possible.

Diabetes insipidus is usually arrested very readily by getting a free action of the the bowels and skin, and checking the urinary secretion by the administration of Gallic Acid and Opium. Sometimes the astringent diuretics may be used with advantage, as the Uva Ursi, Buchu, Chimaphila, etc., or the use of Turpentine, Tincture of Cantharides or Creosote. In some cases I have seen most marked effects from a combination of—

℞ Podophyllin,
Morphia Sulphas, aa, grs. v.
Saccharum Album, 3j. M.

Triturate thoroughly, and divide into twenty powders, of which one might be taken every four hours; one grain of Hydrastin may be added to each dose, if the patient needs a tonic, or if the appetite is poor, or the digestion feeble.

DIET IN DIABETES.—Dr. Edward Smith concludes some interesting observations on this subject with the following summary of the proper diet in diabetes:

1. *Fluids.*—To be limited by degrees daily until they shall not exceed five pounds and a half in both fluid and solid food. Of this quantity two to three pints should consist of new or skimmed milk, and one pint, or less, of tea. In the cold season and at night they should always be given when hot. Of all alcohols brandy is the best, and may be given with water only, or added to milk, or beat up with egg and milk, and given several times daily. No fluid should be given in greater quantity than half a pint at a time, and when milk is reduced in volume by cooking, the daily quantity of fluid must be made up by an additional supply of the same or other fluid.

2. *Solids.*—Dr. Prout's combination of eggs and milk (with sharps substituted for bran) is excellent. Four ounces of sharps and four ounces of peas, beans, or lentils may be made into bread or pudding, with milk, or into omelets with eggs and herbs. Eggs and gelatin may be given when starchy

food can not be altogether intermitted. Eggs, gelatin, cheese, gluten, bread, meat, fat, and oils may be given as largely as they can be digested. The free use of salad oil should be urged, whether in the cooking of fish or flesh, or in the use of water-cress as a salad, or drank alone, so that several ounces may, if possible, be consumed daily; but as there are in all persons preferences and dislikes in reference to particular fats, that kind—whether butter, suet, oil, or fat of meat—should be allowed which is most agreeable. Four ounces of sharps, three ounces of wheaten flour, five ounces of peas, one pound of meat, two ounces of cheese, two pints of milk, and three eggs, will afford more than about thirteen ounces of carbon and one ounce of nitrogen daily.

ISCHURIA.

Arrested discharge of the urine is rather a symptom than a disease, and may occur in various conditions of the system, and from various causes. It may be divided into two forms: *ischuria renalis* or arrest of the secretion, and *ischuria vesicalis* or retention of urine.

Suppression of urine may be caused, as we have already seen, by inflammation of the kidneys, or from chronic structural disease, or from the presence of a calculus in the pelvis of the kidney or ureter, or from sudden congestion of the kidney from cold or shock to the system, or from exhaustion or enfeebled nervous action during many acute diseases. It is usually only partial, as the lesion would have to be very severe that would cause a total suppression.

SYMPTOMS.—The symptoms of suppression vary greatly according to the cause and the condition of the system. If from inflammation, we will have had the marked evidences of that disease previously, and so in the case of chronic structural disease. If from renal calculus, there will usually have been previous symptoms of diseased kidney, and the arrest will frequently be attended with sharp pains in the kidney and back, with chills, prostration and febrile action. If from sudden congestion or shock, there will have been no previous symptoms, or may be a sense of weight and oppression in the lumbar region, with disposition to void urine, but inability to do

so. If during acute disease, the first evidence will be manifestation of symptoms of uræmic poisoning. In all these cases, we will notice a gradually increasing stupor, with disordered innervation. In some cases, there will be partial or complete convulsions, in others pain in the back, and wandering pains throughout the body, the patient being uneasy and restless; and in others an intense pain or feeling of constriction in the head. Nausea and vomiting frequently occur, and the irritability of the stomach seems in some cases to be a leading feature of the disease. As time passes, we find the coma becoming deeper, until at last it is impossible to arouse the patient, the pulse is feeble and irregular, the extremities cold, the countenance hippocratic, and more or less convulsive movement until death ensues.

Retention of urine may occur from paralysis of the bladder, or from irritation of its neck or the urethra, or from the pressure of adjacent organs, or the presence of a calculus. Retention from paralysis is of quite frequent occurrence in typhoid and other low forms of fever and inflammation, and is one of the features of those diseases that the physician will have to be on the constant lookout for. In this case it will be noticed that the prostration is much greater, and the symptoms are more grave than were anticipated, and frequently there is more or less coma. On inquiry, it will be found that the urine has not been passed lately, and on examination the bladder will be found distended. Sometimes the attention is drawn to it when the retention is but partial, by the disposition the patient manifests to keep his hand upon the lower part of the bowels, or clutching at something at that point. The bladder may be paralyzed by too long retention of the urine, as in urethritis, or in affections of the adjacent pelvic viscera, in which micturition is painful. In these cases the patient feels an undue distension, sometimes amounting to pain, and, on attempting to pass water, finds that he has no control over it. Now the patient's suffering becomes intense. He has a constant desire to micturate, and is frequently attempting it, the effort being attended with pain and feeling of great distension, as if the bladder would rupture, which sensation is constant. If the result of irritation of the neck of the bladder or urethritis, the patient has, in addition to the feeling of distension described above, a severe, scalding pain, with more or less

sharp, lancinating pains in the perineum and anus, and sometimes in the small of the back. The symptoms of retention from presence of a diseased or misplaced uterus, or from disease or impaction of the rectum, or enlarged prostate, are very similar. If the retention is produced by a calculus, it comes on during an attempt to micturate, the flow of urine being suddenly stopped; now the patient experiences a constant tenesmus and desire to evacuate the bladder, with exquisite, tearing, burning and lancinating pains at the neck; these pass off in a short time, but continually recur until the difficulty is overcome.

DIAGNOSIS.—It is not difficult to determine that ischuria exists, but sometimes troublesome to determine whether it is suppression or retention. Suppression of urine is very frequently attended with unpleasant sensations in the region of the kidneys; there is stupor, deranged innervation and coma; and if further evidence is wanting, the passage of the catheter elicits the fact that there is no urine in the bladder. Retention of urine is characterized by a feeling of fullness and distension of the bladder, and with tenesmus and desire to evacuate it, but inability to do so. Of course, in low forms of febrile and inflammatory diseases, the only means of determining is by abdominal palpation and the use of the catheter.

PROGNOSIS.—The prognosis is unfavorable in cases of suppression of urine, if it is anything like complete, as uræmic poisoning progresses rapidly. If there is still some secretion, and in proportion to its arrest and the already depressed condition of the system, the prognosis will be favorable. In retention of urine we can nearly always give a favorable prognosis, as even when it results from an impermeable stricture, an operation is practicable.

TREATMENT.—In inflammation of the kidneys with suppression, most active means will have to be employed to relieve the kidneys, both being involved. Cups, with scarification to the entire lumbar region, followed by the hot bath, or sitting the patient in a large tub of hot water with the feet in Mustard water, and closely covered in with a blanket, should be immediately resorted to. The water should be kept as hot as the patient can bear it by the frequent addition of hot water, and

it should be continued for hours, or until the urine commences to pass. A brisk hydragogue cathartic, as equal parts of the Compound Powder of Jalap and Bi-tartrate of Potash, should be administered at once, and repeated if necessary. Many, however, would prefer the direct action of remedies, with hot fomentations contiuually applied to the loins. If the pulse has good volume, Veratrum is given with Gelseminum, in the usual doses. If the pulse is small, I should prefer to trust my patient to Apis, especially if there was a constant desire to urinate, with heat or itching in the urethra. If the pain is in the region of the kidneys, Apis will be alternated with Agrimonia.

In chronic structural disease of the kidneys, suppression is almost invariably fatal. We will have had several days' notice, in a majority of cases, the urine becoming less and less; and during this time the appropriate means will have been used, so that when the symptoms of uræmic poisoning occur, we have no remedies to combat it. In these cases it is important to keep up free action of the bowels and skin, and by these means life may frequently be prolonged for a considerable time. In cases of sudden congestion from shock or cold we would employ cups to the loins, the hot, stimulating hip and foot bath, the administration of a brisk hydragogue cathartic, followed, as soon as their effects had been produced, by a stimulant diuretic, as,

℞ Oleum Terebinthinæ,
Spiritus Ætheris Nitrici,
Tinctura Juniperi, aa., ʒss. M.

Give in doses of a teaspoonful every hour or two hours, in an infusion of Hair-cap Moss. The same treatment would be applicable in cases where we suspected the presence of a calculus, and in addition Hyoscyamus might be given to allay pain, as might also the Tincture of Verbascum.

In cases of retention of urine from paralysis, it is better to draw it off first with a catheter, if of long duration; if not, a stimulant enema, as of Turpentine, with warm Water, and Castor Oil, aided by a warm Mustard sitz-bath, will be sufficient. There is only one agent that I would recommend internally in these cases before the urine is drawn off, and that is Santonin; it may be given in doses of from one to three grains every hour until the urine is evacuated. This agent is especially applicable in the case of retention of urine during

acute disease in children, and rarely fails of accomplishing the purpose. After the urine has been drawn off, the patient should be instructed to pass it frequently, and as an aid we might administer a stimulant diuretic, as Cubebs, Copaiba, Buchu, Tincture of Cantharides, etc. When there is great want of power, in chronic cases, the Nux Vomica may be given with good results, and in some cases it will be advantageous to use electricity.

In cases of irritation of the neck of the bladder and urethra, and in sympathetic irritation from disease of adjacent organs, we find that an injection of Opium is in many cases sufficient. I usually order it as follows:

℞ Tincture of Opium,
Tincture of Gelseminum,
Tincture of Lobelia, aa. gtts xl.
Aqua, ʒij. M.

Use as an enema, and repeat in half an hour if necessary. Internally, no remedies will be found more efficient than the Tinctures of Gelseminum and Macrotys, in doses of five drops of each every hour until relief is obtained. To favor the action of these means, we employ the warm sitz bath as heretofore named. After the patient is relieved, we would treat the disease causing it according to the indications.

M. Cazenave recommended that in retention of urine from spasm, or acute inflammation, we might relieve the patient by the use of cold water, without using the catheter. Clear out the intestines by an enema, then administer as an enema a quart of cold water. Absolute rest must be enforced, and apply bladders of ice to the anus, perineum, thighs and hypogastrium. If this does not succeed, let a stream of cold water be poured upon the region of the bladder twenty to twenty-five minutes. After a time repeat the cold applications as above.

ENURESIS.

Incontinence of urine should properly be considered after diseases of the bladder, but as we have just noticed retention, we may notice it here. Though not a very frequent affection, it is yet met with sufficiently often, and its symptoms are so disagreeable, as to merit careful study. It is of more frequent occurrence during childhood, and may be in these cases attrib-

uted to atony of the muscular fibers closing the neck of the bladder, or to an irritation of the nervous fibrillæ distributed to the mucous membrane of the bladder, which prevents normal distension of that organ. In the adult it is frequently the result of injury, as in cases occurring after labor, or in consequence of long-continued disease of the urethra or bladder.

SYMPTOMS.—The symptoms of the affection vary in different cases; some being able to partially retain the urine, while others have no control over it at all. In the worst cases it continually dribbles away as it is passed into the bladder, the patient being unable to retain it. As the result of this state of affairs we find that the person is rendered filthy, and is debarred society on account of the disgusting urinary odor that he can not get rid of. There is also more or less irritation of the genital organs, and of the adjacent integument, sometimes very severe, resulting in deep, foul-looking ulcers. In other cases, it is retained to the amount of a few drachms, and then commences to dribble away, unless the patient has an opportunity to void it. In other cases, the bladder being irritable, it is forcibly expelled, after having accumulated to a certain extent, the patient having no power to resist its expulsion. Incontinence of urine at night is a troublesome affection among children, and the physician is frequently consulted about it; but, unlike the other, it usually arises from an irritability of the bladder, which, assuming control when the will is in abeyance during sleep, causes the discharge.

DIAGNOSIS.—There is little difficulty in determining the existence of enuresis, but care should be used to ascertain definitely the cause. In females a careful examination should be made to determine that the constant dribbling of urine is not consequent upon vesico-vaginal fistula.

TREATMENT.—I regard Belladonna as a specific in many of these cases, having used it internally with the best results. I employ it in small doses, as:

℞ Tincture of Belladonna, gtts. x.
Water, ʒiv. M.

A teaspoonful four times a day for an adult. When dependent upon atony and relaxation of the circular fibers at the neck of the bladder, good results will be obtained from the internal

use of Nux Vomica and Cantharides, with a tonic, bracing treatment. I usually direct:

℞ Extract of Nux Vomica, gr. iv.
Hydrastia, ʒss.
Extract of Macrotys, q. s. M

Make thirty pills, of which one may be taken three or four times a day. The Tincture of Cantharides may be associated with it or used separately in doses of from ten to thirty drops three or four times daily. I have employed the stimulant diuretics, as Styrax, Tolu, Cubebs, Copaiba and Turpentine, but without any permanent good effect. Dr. Steinbeck prescribed for incontinence of urine after labor, ℞ Ergot, ʒss; infuse in Water, ʒvj; boil for a few minutes, and add of Belladonna leaves, gr. xv; when cool, strain the infusion, and add of Phosphoric Acid (medicinal strength,) ʒij; Extract of Nux Vomica, gr. iv; Syrup of Manna, ʒj; M., and give in doses of a teaspoonful every two hours. M. Froriep recommended the use of electricity; a metallic stylet being introduced into the bladder through a gum catheter, one of the wires is connected with the stylet, the other is applied to the pubes, the current being passed through the bladder for a quarter of an hour each day. The use of the Salt water bath with brisk friction to the lower portion of the abdomen and perineum, will be found a valuable aid. In some cases much benefit will result from the application of a small fly blister, alternately, to the hypogastric region and the perineum.

When dependent upon irritation, the treatment will be directly opposite to that just named. Among internal remedies none will be found more useful than the Agrimonia, Hydrangea, Bromide of Potash, and Santonin. The irritating plaster applied to the hypogastric region is sometimes of great advantage, and it may be occasionally useful when applied to the lumbar spine. The bowels should be kept regular, and any cause of irritation in adjacent organs removed. If this does not seem to answer the purpose, I employ injections into the bladder of an infusion of Hydrastis or Cornus, or of Glycerin, or of Glycerin and Chlorate of Potash. In some cases the incontinence is overcome by injections of tepid water, the object being to distend the viscus, and establish a degree of tolerance.

In the incontinence of urine in feeble children, a bitter tonic treatment, with Iron, and the use of the Salt-water bath, will

be found essential. For the disease itself, small doses of Belladonna and Nux Vomica answer a good purpose, or Cubebs may also be used. If it is at night, the child should be impressed with the necessity of getting up, and in a short time it will be found that it wakes regularly, and the disposition to involuntary evacuation having been in this way removed, the child will eventually retain its urine all night.

PASSAGE OF RENAL CALCULI.

As already named, calculi sometimes form in the pelvis of the kidney, and traverse the ureter to the bladder. If they are round and smooth, their passage may not be difficult; but if rough, as in the case of oxalate of lime, it is attended with the most exquisite pain. The pain commences in the loins, and passes in the course of the ureter to the bladder; it frequently extends to the testicle and down the thigh, and sometimes to the hip. It is attended with great prostration, there is nausea and vomiting, with sometimes colicky pains in the abdomen, and extreme restlessness. The pain is sometimes so severe as to draw the patient double, and cause him to cry out with the intensity of the suffering. The descent of the calculus usually occupies from twelve to thirty-six hours, during which time the suffering continues, though not constant. Sometimes there is considerable hemorrhage during this period, and if the pain has been very severe we will find the patient with cold extremities, and a cold clammy sweat will break out during the paroxysms.

Treatment. — Having determined from the location and character of the pain that it is probably owing to the passage of a renal calculus, we will place the patient in a warm bath, as hot as can be borne, and maintain the temperature of the water until temporary relief is obtained. Internally we may administer Chloroform in doses of ten or twenty drops every half hour or hour in Glycerin, and, if need be, use in addition some preparation of Opium. The Tinctura Opii Crocata, or McMunn's Elixir, are the preparations I prefer. In some cases, to favor action of the skin, we might use the Compound Tincture of Serpentaria; demulcent diuretics, as the

Althæa or Hair-cap Moss, rendered alkaline by the addition of a small portion of Potash, will be found beneficial. When the patient is removed from the warm bath, hot fomentations should be continuously employed. If these means should not give relief, I would place the patient partly under the influence of Chloroform, and maintain its action until the calculus had passed.

ACUTE CYSTITIS.

Acute inflammation of the urinary bladder is not of frequent occurrence. It is usually caused by injuries, or from irritating diuretics or injections, or from disease of adjacent viscera, and more rarely from cold. It may be confined to the mucous coat, or may involve both it and the muscular, or extend to the peritoneum.

SYMPTOMS.—Acute cystitis commences with pain in the hypogastric region, of a sub-acute character, with soreness on pressure. There is a frequent desire to urinate, and these calls are attended with an aggravation of the suffering. From the sympathy existing between the bladder and the kidneys, the urinary secretion becomes scant and high-colored, and its increased acridity gives rise to a painful burning and scalding sensation when it is passed. When the disease has attained its greatest intensity, there is an almost constant desire to micturate, with an intense tenesmus, so that the patient is sometimes obliged to take hold of something with his hands when passing water, and will frequently bite his lips to keep from crying out with the severe suffering.

With the commencement of the pain the patient is usually seized with a chill or well-marked rigor, which is followed by febrile action, generally of a remittent character, and not very severe. The disease runs a course of from six to twelve days, and terminates in resolution, or the chronic form; or in some rare cases, extending to the peritoneum and adjacent fascia, gives rise to the formation of a pelvic abscess.

DIAGNOSIS.—Acute cystitis is readily determined by the seat of the pain, and by its aggravation during micturition, the change in the character of the urine and its difficult passage, with tenesmus, is additional evidence.

PROGNOSIS.—The disease usually terminates favorably without any structural change, and except in cases in which inflammation extends to the adjacent tissues, there is but little danger.

TREATMENT.—In this case we would administer the special sedatives with Gelseminum and a diaphoretic, as,

℞ Tincture of Veratrum, gtts. x.
Tincture of Gelseminum, ʒi.
Water, ʒiv. M.

Of which a teaspoonful might be administered every hour at first, until the influence of the remedies is marked, and less frequently afterwards. A brisk cathartic of equal parts of the Compound Powder of Jalap and Bi-tartrate of Potash may be given immediately, and repeated if necessary. A mucilaginous-diuretic, or an infusion of Marsh Mallows, Hair-cap Moss or Verbascum, may be administered freely, and in some cases a small portion of the Acetate or Citrate of Potash may be given with it, say to the amount of one or two drachms in the course of twenty-four hours. Instead of the remedies first named we might use,

℞ Tincture of Eryngium, ʒij.
Tincture of Aconite, gtt. x.
Water, ʒiv. M.

Give in teaspoonful doses every hour.

The hot sitz bath should be freely employed, as it seems to give greater relief than other local applications. The patient may sit in a tub of hot water for two or three hours, and repeat it as many times a day; between the baths hot fomentations may be used. An enema of Tincture of Opium, Gelseminum and Lobelia, with warm water, frequently gives marked relief. As the acute symptoms pass off we will resort to the more stimulating diuretics, as the Uva Ursi, with Macrotys, Buchu, Agrimonia, and Collinsonia.

CHRONIC CYSTITIS.

Chronic inflammation of the bladder is of more frequent occurrence than the acute. It is almost always confined to the mucous coat, giving rise to the various changes of structure noticed during chronic inflammation, as thickening of the

mucous membrane, enlargement of the follicles, ulceration, etc. Its causes are various; it may arise from cold, injuries, irritating diuretics or injections, the presence of calculi, irritation from disease of the kidneys, extension of disease from the urethra, as in gonorrhœa, and from extension of disease from adjacent organs.

SYMPTOMS.—Persons suffering from chronic cystitis usually complain of a sense of weight in the hypogastrium and perineum, with a dull, dragging pain. There is also tenderness on deep pressure over the hypogastrium. More or less difficulty is experienced in passing urine, sometimes on account of the increased mucous secretion, and at others, from the seeming acridity of the urine. The patient frequently complains of pain in the neck of the bladder, extending the entire length of the urethra, and sometimes of a sensation of scalding or burning referred to the region of the bladder. In severer cases, when complicated with disease of the prostate, or when ulceration has occurred, the pain and heat in the bladder is very severe, the call to urinate urgent, and attended by violent tenesmus and straining.

The general health becomes markedly affected when the disease is severe; the bowels are constipated; the appetite impaired; the skin dry, harsh and sallow; and considerable loss of flesh and strength. The urine varies greatly; in the milder cases it seems nearly natural, but in the more severe cases, it contains mucus, pus, and the phosphates. Sometimes it is so thick by the presence of these materials that it is voided with difficulty.

DIAGNOSIS.—Chronic cystitis is determined by the location of the pains and tenderness, and its association with difficulty in passing water, and alteration in the urine dependent upon the changed secretions of the bladder. Mucus in urine may be determined by its action on litmus paper, by its particles coagulating into a thin, semi-opaque membrane, on the addition of Nitric Acid, and by its soon undergoing putrefactive decomposition, becoming ammoniacal. Pus in urine generally falls to the bottom when allowed to stand; Acetic Acid has no effect on it, but if agitated with Liquor Potassæ it forms a dense, translucent, gelatinous mass. If the urine contains phosphatic deposits it is often very fœtid, sometimes pale, at others

greenish, and viscid from abundance of mucus. On placing some of the mucus beneath the microscope, abundant crystals of the triple phosphate are found entangled in it. Dr. Bird remarks that: "One point must be borne in mind in forming a prognosis from the state of the urine, viz., not to regard it as ammoniacal because the odor is offensive, and not to consider the deposit as purulent because it looks so. A piece of litmus paper will often show it to be neutral, and even sometimes acid, while microscopic inspection often proves the puriform appearance of the urine to be an admixture of the phosphates with mucus. For want of these precautions, I have seen some cases regarded as almost hopeless which afterward yielded to judicious treatment. It is quite certain that the mucous membrane of the bladder may, under the influence of chronic inflammation, secrete so much of the earthy phosphates and unhealthy mucus, as to render the urine puriform and offensive without having necessarily undergone any structural change."

Prognosis.—Though persistent in its character, the disease is almost always amenable to treatment. Cases in which there is enlarged prostate with ulceration of the bladder, are the most intractable, and sometimes prove fatal. When associated with chronic disease of the kidneys, it is almost always fatal.

Post-Mortem Examination.—In the milder forms of this affection, we find the mucous membrane thickened, injected and discolored, and its follicles enlarged. It is frequently softened so as to separate from the muscular coat with considerable readiness. In a still more advanced stage the entire coats are thickened and contracted, the mucous follicles enlarged; and more or less ulceration, sometimes regular and well defined, and at others irregular and sloughy. According to Copland, "When the ulceration is extensive, the hypertrophied muscular fibres appear, and resemble the columnæ carnea of the heart, presenting a purplish-red color, the mucous coat between the columns thus formed being pale, soft and swollen. Pouches or sacks generally co-exist, with dilated ureters, between these muscular columns, and are formed by the contraction of the bladder and of the abdominal muscles in expelling the urine, forcing the mucous coat in places between the muscular fibres.

These pouches are lined with a diseased mucous coat, which secretes an alkaline mucus, and are sometimes the receptacles of a mortar-like matter, and finally of calculi, consisting generally of phosphate of lime. As the disease progresses, it frequently extends to the ureters, pelvis of the kidney, and at last so involves its structure as to occasion death."

TREATMENT.—The milder forms of chronic cystitis are frequently cured by the employment of tonic, astringent, and stimulant diuretics and the judicious use of counter-irritants, I have used the Tinctures of Agrimonia, Eryngium, Hydrangea, and Collinsonia, with marked success, sometimes adding the Santonine or Bromide of Potash, if there was much burning or irritation. The Uva Ursi, Chimaphilla and Buchu, are also employed with advantage in some cases. When there is greatly increased secretion of mucus, we may sometimes get good results from the use of Cubebs and Hydrastis, in doses of two grains of the first to five of the last, four or five times a day. Copaiba is sometimes found useful, as is also the Tincture of Cantharides. When the irritation seems acute, I have employed the Conium, with Black Cohosh, with marked advantage. In addition it is very essential that the bowels be kept in a soluble condition, and if there is any disease or cause of irritation of the rectum, it should be removed.

I have great faith in the use of counter-irritation in these cases, though it will not do to rely on it to effect a cure in the worst cases. I prefer the irritating plaster applied low down over the hypogastrium, and continued so as to produce suppuration; if the patient complains of the back, or there is tenderness on pressure, I use it also there. Instead of this, dry cups and sponging with strong Salt water, answers a good purpose, or we may use the Croton Oil in strong stimulating liniments.

The measures above named answer very well in the milder cases, and though we use them in the severer forms of the disease, we do not depend upon them. In such cases we resort to injections to remove morbid accumulations, and for their topical action. It is surprising to see the benefit that will result from simply washing out the bladder with tepid water, in cases of phosphatic urine with increased mucous secretion; the distressing tenesmus and burning pain and difficulty of

passing water, all disappear, but return when this material again accumulates. In some cases the use of simple tepid water is all that is necessary, but in others we medicate the injection. If there is much irritability of the bladder, we might employ equal parts of Glycerin and Rose-water after the tepid injection; or,

℞ Chlorate of Potash, ʒss.
Glycerine.
Rose-Water, aa, ʒii. M.

Use one ounce as an injection, with water three ounces.

℞ Zinci Sulphas, gr. x.
Morphia Sulphas, gr. iij.
Glycerine.
Aqua Rosæ, aa, ʒii. M.

One ounce to be used as an injection, after washing the bladder out with tepid water, and if it produces too much burning, to be followed by the injection of more water to wash it out. Chloride of Zinc may be used as an injection in the proportion of one or at farthest two grains to the ounce of water. A decoction of Hydrastis or Cornus Florida has been used with success in many cases.

Prof. King recommends the Elaterium, a tincture being made by adding ʒj. to Alcohol Oj. He says:

"I have used this remedy since 1849, and with invariable success. In the more severe cases, I have usually commenced by giving half a fluid drachm of the Tincture of Elaterium, one, two, or three times a day, until it acted upon the bowels; and afterward continue its use in doses of from five to ten drops, gradually increasing it as it could be borne. Great relief has always followed in these cases, as soon as the purgative effect came on from the first large doses, and that, too, in cases where other purgatives had been frequently taken without any relief whatever. In less severe cases I commence with six or eight drops three times a day, gradually increasing it as can be borne, and being very careful to avoid giving it in doses to act upon the bowels. This action I have only deemed necessary at the commencement of treatment in the more severe and obstinate cases. A great difference will be found among different persons as to the doses they can bear, on which account some care and attention is required on commencing the treatment."

URINARY DEPOSITS.

We may glance briefly here at those deposits from the urine that give rise to irritation of the urinary passages, and that when aggregated form calculi. Unless there is marked irritation of the urinary apparatus, or some lesion that is likely to be explained by an examination of the urine, this examination is rarely made. The most frequent cause calling for it is the passage of small urinary concretions through the urethra. In these cases, in order to prevent their future formation, and especially to guard against calculus or stone in the bladder, we wish to determine the nature of the deposit, and thus adopt means to prevent it. Much more space should be given to the subject than we are able to devote here, but some of the more prominent facts may be stated.

In a normal condition there is no deposit from the urine, if we except a slight amount of mucus and epithelial debris, which subsides upon the urine's standing. We have already noticed that during disease of the urinary organs certain material would be found in the urine, depending on the disease for its origin. Thus, we have the elements of blood, red globules and albumen, mucus, epithelial cells, casts of the uriniferous tubules, and pus, and in certain diseased conditions of the bladder, the triple phosphate. Other deposits undoubtedly depend upon some lesion of the blood, nervous system, or the functions of digestion and assimilation. Being symptomatic, in some cases, of grave changes in the system, they are worthy of notice on this account, as well as the irritation and disease of the urinary organs that they entail.

The principal deposits we have to notice are, *uric acid and urates*, *oxalate of lime*, *cystine*, *phosphate of lime*, *ammonia*, *phosphate of magnesia*, *carbonate of lime*, *silicic acid*. These deposits may occur in the form of minute crystals, or an amorphous material, which is slowly deposited as the urine cools. Or the particles may be aggregated so as to form small masses from the size of a mustard seed to that of a cherry-stone, which is termed *gravel;* or it may be combined in masses varying from this to one or two ounces, and in some rare cases to six, eight, ten, or even sixteen ounces, under the name of urinary calculi.

Uric acid, or as sometimes called *lithic* acid, is a natural con-

stituent of the urine, but is found in small quantity, thirty-nine parts in a thousand of urine. It arises from the metamorphosis of tissue, and, as Liebig contends, is the immediate product of the breaking down of all nitrogenized tissues by oxidation, and that urea is a secondary product, arising from the action of oxygen and water on it. This proposition is disputed by many eminent physiologists, but all admit the fact that its origin is from the waste of the tissues, and from imperfectly elaborated ingesta rich in nitrogen. It is usually excreted in health combined with ammonia or soda, as urate of ammonia, or urate of soda. Urine containing uric acid always reddens litmus paper, and its specific gravity is generally above 1020. When an excess of acid is present, it lets fall crystals in cooling, though all is not deposited until decomposition has commenced. Very high-colored urine seldom deposits much uric acid, unless a stronger acid is added. We obtain the crystals for microscopic examination easiest by putting the urine in a bottle, letting it stand for some time, cork downward; by quickly turning it back and withdrawing the cork, the drop or two adhering to it is rich in the deposit. Lithic acid presents beautiful crystals under the microscope, usually rhomboidal in form; the urates are in the form of an amorphous sediment, either yellow or reddish in color, and redissolve on heating the urine.

As regards the pathological signification of deposits of uric acid and urates, we find that they may sometimes be deposited in excess from intemperance in eating, from temporary irritation of the stomach and other minor diseases interfering with digestion and assimilation. In other cases they undoubtedly depend upon some imperfection in the process of the retrograde metamorphosis of tissue. Dr. Bird remarks that: "Uric acid and urates may occur in great abundance in the urine, so as to be serious sources of irritation, and then especially become primary objects of attention as definite diseases. Still we must never forget that a mere deposit of urate of ammonia may be the result of causes hardly amounting to disease, and may be rather regarded as an evidence of the integrity of the depurating functions of the kidneys than of their lesion. We have frequently to disabuse our patients' minds of very erroneous opinions they have entertained on that point, which have added very seriously to their anxieties

by apprehensions of impending disease. Uric acid and urates may be deposited in an insoluble form in the kidney or bladder, and aggregating, form a mass, on which, by a kind of imperfect crystallization, great quantities of the acid or its salts may be deposited, giving rise to the formation of a calculus. Uric acid is of more serious importance than most other elements of calculus formations, not only from its constituting a large proportion of all urinary calculi, but even when they are composed chiefly of other ingredients, the nuclei on which they are deposited are, in the great majority of cases, composed of uric acid. On account of its solubility, urate of ammonia is not a frequent component of entire calculi, although it often enters with other ingredients into their composition. Indeed, calculi wholly composed of this compound are almost peculiar to children. It is hence very probable that if we, by medical treatment, succeed in overcoming a calculous diathesis, or dissolving a stone in the act of growth, it will be by means directed to the solution of the uric acid and its combinations."

The uric or lithic calculus, the most common of all forms, is of a brownish mahogany color, oval or flattened in form, and finely tuberculated or smooth, though not polished. It is perfectly dissolved in caustic potash, and disappears with effervescence in hot nitric acid, the solution affording, when evaporated to dryness, a bright carmine residue. It becomes black and is gradually consumed before the blow-pipe, leaving a minute quantity of white alkaline ashes.

TREATMENT.—The principal indications in the treatment of uric acid deposit is to restore the normal action of the skin, correct any derangement of digestion, and give tone to the stomach and bowels, and finally, by regular living, open air exercise, etc., get perfect assimilation of the food, and better excretion of the detritus of the system. In addition, certain means are used to neutralize the uric acid, or so change it as to prevent deposit. Among all the measures, none seem more important than those directed to obtaining normal action of the skin, as an arrest of perspiration furnishes material for the formation of a deposit, by retaining in the blood elements that are capable of rendering uric acid insoluble. The frequent use of the warm bath seems to be adapted to many

cases. It may be rendered tonic and bracing by the addition of common Salt, or, still better, by Carbonate of Potash, or stimulant by the addition of Capsicum or Mustard. It should always be followed by brisk friction with the hand, a coarse towel, or the flesh-brush; and the patient should invariably use a soft, loose, but thick flannel next the skin, and the other clothing should be warm. In place of the warm bath, the vapor bath may be used; it may be extemporized by sitting the patient on a wooden-bottomed chair, with his feet in a bucket of hot water, and place another bucket of boiling water under the chair, and raising a sufficient quantity of steam by immersing in it a hot iron or brick, a blanket being drawn closely around the patient and chair to prevent the escape of vapor. In some cases a cold sponge bath may be used, followed by rubbing with a coarse towel or flesh-brush. In some cases the bath should be rendered decidedly stimulant, by the addition of Capsicum, or tonic, by using an infusion of the bitter tonics.

Means to restore the tone of the stomach, is of great importance, as by correcting disordered digestion a double object is attained; the perfection of the primary assimilation of the food, by which the entrance into the blood of a crude nitrogenized matter capable of being converted into uric acid, is checked; and the prevention of the generation of any acid, the product of unhealthy digestion, which might be absorbed into the circulation, reach the kidneys, and act as a precipitant of uric acid. (Bird.) Various means will have to be resorted to as named under the head of dyspepsia. A bitter tonic, as an infusion of Hydrastis, Cornus or Populus, or other preparations of similar agents, with moderate doses of Carbonate of Potash or Soda, and if necessary, a preparation of Iron, sometimes answer a good purpose. A pill of Nux Vomica and Hydrastia, as heretofore named, answers a good purpose, and may be associated with an alkali. The Compound Powder of Rhubarb and Potash, in infusion, or the Compound Syrup of Rhubarb, accomplish all that is desired in some conditions. If there is any tenderness on pressure, or pain in the epigastric region, the irritating plaster should be employed until relieved.

Careful attention to the bowels, to keep them in a soluble condition, is necessary. The Podophyllin Pill—

℞ Podophyllin, gr. x
Leptandrin, gr. xx.
Extract of Conium, gr. xx. M.

Make twenty pills—is usually sufficient, in doses of one or two daily, until the bowels are regulated.

All this may be attended to, and yet if the patient is careless as regards his habits, it will be of no avail. The most rigid attention to the quality and quantity of the food is imperative, and frequently of far more importance than medicine. It should be, to a considerable extent, of easily digested animal food, with such vegetables as are easily digested, but none that will produce acidity, or be long in digesting. It is better for the patient to eat too little, rather than too much; as a badly digested meal, from overloading the stomach, in a person suffering from gravel or calculi, will become a double source of mischief, by furnishing too much nitrogen, and giving rise to acid fermentation. Moderate exercise in the open air is indispensable to a proper performance of the functions of the body, and especially of digestion and assimilation, and thus becomes a very important part of the treatment.

Colchicum has been recommended in this case by several writers, and used with care, may sometimes prove beneficial. Dr. Cooper ordered low diet, vegetable food, the warm bath, and Carbonate of Soda, or Potash, given three or four hours after taking a meal; vegetable acids might be used, but everything liable to generate acids in the stomach was to be scrupulously avoided. Mr. A. Ure recommended Benzoic Acid, in doses of five or ten grains, three times a day, to prevent the formation of uric acid; and Dr. O. Rees as strongly recommended Citric Acid, which is undoubtedly of service in some rheumatic and gouty cases. The alkaline agents, especially Carbonate of Potash and Soda, and the Acetate, Citrate and Tartrate of the same, and Liquor Potassæ, are the only agents that as yet have seemed to have any influence in lessening the size of the urinary concretions, and their action is doubtful.

OXALURIA.

Oxalate of lime is the next most frequent deposit to uric acid and the urates, and is almost always associated with an excess of the last named agents. It is only recently that it has been studied, as the crystals are so minute as to require the microscope for their examination; the formation of

gravel being of rare occurrence. At first it was supposed to arise from the decomposition of sugar, but this idea was exploded when it was found not to be present in diabetes. Dr. Bird remarks: "From the symptoms presented in cases of this disease, there is no difficulty in proving to a demonstration the positive and constant existence of serious functional derangement of the digestive organs, especially the stomach, duodenum, and liver; and further, that the quantity of oxalic acid generated is, to a very great extent, under the control of diet; some articles of food quite free from oxalic acid at once causing the excretion of this substance in very large quantities, whilst others appear to have the effect of nearly totally checking it. These circumstances alone, together with the emaciation so generally present in the disease under consideration, at once prove, that whatever be the immediate agent which causes the kidneys to secrete the oxalic acid from the blood, the primary cause must, as Dr. Prout has well and satisfactorily shown, be referred to an unhealthy condition of the digestive and assimilative functions."

The specific gravity of urine in oxaluria is usually from 1020 to 1030, and as before remarked, in many cases it contains an excess of uric acid and urates, urate of ammonia being deposited on cooling, and sometimes tinted by purpurin.

The deposit of oxalate of lime occurs in the form of white glistening powder, which, when examined under the microscope, is found to consist of transparent octahedra, with sharply defined edges and angles. The best way of making the examination is, to allow a portion of the urine passed a few hours after a meal, to stand until cool, then decant off the major portion, and pour part of the remainder into a watch glass, when, on applying heat, the crystals of oxalate will be collected at the bottom.

Oxalic calculi are next in frequency to the uric; they are generally of a dark brown color, rough and tuberculated, hard, compact, and imperfectly laminated. It is insoluble in the alkalies, dissolves slowly in nitric and hydrochloric acid, if previously well broken up, and under the blow-pipe expands and effloresces into a white powder. A variety of this species is remarkably smooth, and of small size, and from its shape has been described under the name of *hemp-seed*.

The *symptoms* of oxaluria are those of greatly depressed

vitality. The appetite is irregular, and digestion imperfect, with well marked dyspeptic symptoms. The secretions are deranged, the skin being very susceptible to external impressions, at times dry and harsh, again soft and flabby and covered with an unnatural perspiration; the bowels are usually torpid and sluggish, and do not respond well to the action of medicine. The patient is low-spirited and melancholy, the temper is irritable, and there is great restlessness, and constant brooding over his condition. There is frequently a very disagreeable sense of weight and pain in the loins and small of the back; the urine is voided with increased frequency, and with more or less heat and scalding. The patient becomes greatly emaciated as the disorder advances, and frequently sinks into a state of confirmed hypochondriasis. If the disease goes thus far, some other portion of the system becomes the seat of disease, as the lungs, liver, bowels, etc., which carries the patient off.

TREATMENT.— In the treatment of oxaluria, the most prominent indications are, to improve the general health, and to establish secretion from the other emunctories. As there is a condition of confirmed dyspepsia, this must be managed as heretofore named. I might here remark, that I have found the strong infusion of Peach bark given in quantities of two teaspoonfuls every three hours, and also the Tincture of Collinsonia in half teaspoonful doses four times a day, very successful remedies in these cases. I frequently order the Triple Phosphate of Quinine, Strychnia and Iron (compound Tonic Mixture), in half teaspoonful doses two or three times a day. It should be given with water, as much as a half wine-glassful with each dose. The colorless fluid Hydrastis fits some cases well, in doses of a half teaspoonful. The Hydrastis is a very efficient agent in some of these cases, as is also the Ptelea, Populus and Liriodendron. These remedies should in all cases be associated with the mineral acids, the Nitric being recommended by Dr. Prout, but a combination of one part of Nitric and two or three of Hydrochloric, by others. If there is tenderness on pressure over the epigastrium, I would strongly recommend the irritating plaster. To overcome constipation of the bowels where it exists, we may

employ the Podophyllin Pill, named under the head of uric acid, or the Powder of Sulphur and Phosphate of Soda, named in preceding pages. The diet should be regulated with the greatest care, all agents that produce flatulence or acidity of the stomach being discarded, animal and vegetable food being used in about equal proportions. The same means to increase elimination from the skin, as in the case of uric acid, should be employed here, and especially should flannel be worn next to the skin, and warm clothing, to protect the body against sudden changes of temperature. In many cases, all drinks but water will have to be excluded, and especially should wine, beer, and other stimulants be proscribed: a small portion of brandy being allowed, if absolutely necessary.

PHOSPHURIA.

A considerable quantity of phosphoric acid is excreted from the blood through the kidneys in health, usually divided between four bases, soda, ammonia, lime and magnesia, all of which are either soluble themselves, or rendered so by the presence of some acid, the presence of a very minute portion being sufficient for this purpose.

It may also be deposited in a healthy condition of the system, as after eating, laborious exercise, and especially after severe mental labor, but the deposit continues for only a short time; where continuously deposited, it is always indicative of important functional, and sometimes of organic disease. Dr. Bird remarks that one general law appears to govern the pathological development of these deposits, viz.: that they always exist simultaneously with a depressed state of nervous energy, often general, more rarely local in its seat. Of the former, the result of wear and tear of body and mind in old people, and of the latter, the effects of local injury to the spine, will serve as examples. "Three forms of phosphatic deposit may be named: the *triple phosphate*, *phosphate of lime*, or calcareous deposit, and the mixed deposit, a combination of the two preceding. The first is almost always associated with dyspepsia, the digestive functions being poorly performed, the patient irritable and restless, with loss of flesh and strength, so that he is fatigued by slight exertion. The urine is usually copious, of a light amber color, or in some cases it is dark, and of a high specific gravity, 1025 to 1030. The deposit of phosphate

of lime occurs from urine secreted in large quantity, of low specific gravity, and readily decomposed by the atmosphere. The mixed deposit usually occurs combined with a large quantity of mucus, the urine being pale, fœtid, and depositing a thick, mortar like sediment on standing. It usually occurs in cases of injury, or severe diseases of the spine, organic disease of the kidneys and bladder, in the severe forms of dyspepsia, and in persons who have been exhausted by severe mental labor, anxiety, night-watching, and during the progress of some cachectic affection that debilitates the system. The symptoms are those of imperfect digestion, mal-assimilation and nutrition, and disordered innervation.

Deposits of the phosphates are always white, unless colored with blood, are insoluble in ammonia or liquor potassæ, but soluble in dilute hydrochloric acid. In a majority of cases, urine depositing much of the phosphates is alkaline, though they are deposited when it gives an acid reaction with litmus paper, but in this case the acidity does not depend upon free acid, but upon neutral salts. These deposits often settle to the bottom, like a thick cloud of mucus, for which it is frequently mistaken; we may at once detect their true nature, however, by the addition of hydrochloric acid, which dissolves the phosphates, but does not affect the mucus. When examined by the microscope, the triple phosphate presents beautiful crystals, of the form of triangular prisms, small stellate concretions, and peniform crystals. The phosphate of lime does not occur in crystals, but occasionally in irregular crystalized masses. Calculi of phosphate of lime are not of frequent occurrence, but it sometimes forms alternate layers with other matter. When it occurs it is usually small, of a pale-brown color, of a loosely laminated structure, not fusible with the blow-pipe, but readily soluble in hydrochloric acid without effervescence. The ammoniaco-magnesian calculus is of a white color and friable, looking a good deal like a mass of chalk; it exhales an ammoniacal odor before the blow-pipe, is not affected by caustic potash, but is easily dissolved in dilute acids. Another form of phosphatic calculi has been denominated fusible; it is white, extremely brittle, easily separated into layers, and leaves a white dust on the fingers. It is not affected by caustic potash, is soluble in hydrochloric acid, and is melted into a transparent pearly glass under the blow-pipe.

Both these last forms often attain an immense size, and frequently form incrustations on foreign bodies.

TREATMENT.—The general treatment will be somewhat similar to the other forms. The bitter tonics and iron, to improve digestion and the quality of the blood, should be steadily employed. In some cases there seems to be such a loss of tone on the part of the stomach, that tonics have no effect; in such cases I direct an emetic two or three times a week; with the happiest results. As in the case of oxaluria I have obtained most excellent results from the use of Nux Vomica and Strychnia, and the Collinsonia and Agrimonia; Quinine to the extent of from two to eight grains a day, is often of marked benefit.

The urine should be kept acid to prevent a deposit, and for this purpose dilute Nitric Acid is most frequently used. The bowels should be kept in a soluble condition, as heretofore named, and strict attention given to the skin, and its secretion favored by the use of the bath, friction, and wearing flannel and warm clothing. The diet should be carefully selected, plain, but generous, and to a considerable extent, of animal food.

CHAPTER VII.

DISEASES OF THE ORGANS OF GENERATION.

There are a large number of these diseases that need not be mentioned here, as they are fully described in special works, such as the "Diseases of Women," which require a special treatise, and Venereal Diseases, which are deemed to belong to the province of Surgery. On both of these subjects the author has given his views, in his "*Diseases of Women,*" and "*On the Venereal and the Reproductive Organs.*"

There are some of these affections, however, that have not had this consideration. They are very persistent, excessively annoying to the patient, and intractable to ordinary treatment. If I were writing a work on Surgery, I should deem it the most appropriate place, but as I do not propose anything of the kind, we will give them a brief notice in this place.

ORCHITIS.

Inflammation of the testicle may be produced by any of the ordinary causes of inflammation, and we occasionally meet with cases, in which there has been no special cause. Usually, however, it will have been excited by an injury of some kind in the simple form of the disease, or by the venereal poison in gonorrhœa and syphilis.

Symptoms.—The symptoms of orchitis do not differ materially, whether it has arisen from ordinary causes, or from gonorrhœa. The patient first complains of a sensation of weight and dragging in the scrotum, and pain on any sudden movement or jar. In a few hours these symptoms have become

more marked, and the patient finds that all movement is painful; and at last has to assume the recumbent position, and keep the part supported.

As these symptoms develop, the testicle increases in size, until finally it attains a diameter of a couple of inches, and a length of three, or sometimes four inches. It is quite sensitive to the touch, and when allowed to drag upon the cord, is very painful. Sometimes there is considerable heat of the part, and the scrotum is reddened. The pain in the organ is of a tensive character, with occasional lancinating pains; sometimes they are of a throbbing character, and are very severe.

The disease runs a variable course; sometimes coming up rapidly, the organ attaining its greatest size in one or two days, at others slowly increasing for a week. It will sometimes pass away, under appropriate treatment, in forty-eight hours, but in others may last for days.

Gonorrhœal orchitis is usually developed coetaneous with the suppression of the discharge from the urethra. Many have thought that such arrest was the cause of the inflammation—that the orchitis was a metastasis. This opinion is strengthened by the fact, that with the subsidence of the disease of the testes the discharge reappears—or, as others would state it, with the re-appearance of the clap, the orchitis abates. There is no doubt but there is an intimate relation between the two, and a treatment that looks to the sudden suppression of a gonorrhœal discharge will frequently be followed by the inflamed testes.

The constitutional disturbance varies in different cases. In some there is marked febrile action and arrest of secretion, in others but little disturbance.

DIAGNOSIS.—The diagnosis of orchitis is readily made. No one making a careful examination would fail to determine the solidity of the testicle in inflammation, from a distension of the scrotum from serum, blood, or the pressure of the intestine in hernia.

It has been deemed more difficult to determine whether it was simple or specific. An examination of the penis will give the necessary information. In simple inflammation there is no evidence of recent disease of the prepuce and glans, or of the urethra. In gonorrhœal orchitis, though the discharge has

usually ceased, the mucous membrane is tumid, dusky or livid, and irritable. If syphilitic, the disease has developed slowly, there are evidences of previous chancre, and almost invariably a cutaneous eruption of the syphilidæ.

PROGNOSIS.—With proper treatment, we may safely promise speedy relief, in a large majority of cases. Once in a while, we will meet with a very stubborn case, continuing until both patient and physician are discouraged. Gonorrhœal orchitis, as a general rule, is most readily managed; and syphilitic orchitis the most stubborn.

TREATMENT.—If the inflammation is of an acute character, I usually prescribe:

℞ Tincture of Veratrum, ℥ss.
Tincture of Gelseminum, ℥ij.
Water, ℥iv. M.

A teaspoonful every hour. If, however, there is a sluggish circulation, I prefer Aconite and Belladonna in the usual doses. The patient's bowels are moved with a Seidlitz Powder, or some mild cathartic.

If it has arisen from gonorrhœa, the use of means to check the discharge should be stopped, and nothing used but a mild lead wash or a solution of Sulphate of Hydrastia, as an injection.

Rather than use local applications, I prefer supporting the testicle by means of adhesive straps. Let the patient lie down, and cut the hair from the pubes and perineum, where it is necessary to attach the straps. Cut the adhesive plaster in strips over an inch broad, the width of the roll. Have the person support the testicle on the abdomen, and with the straps well heated, apply them from the perineum upward on the abdomen, and from side to side around the testicle crosswise. The object is to bind it firmly to the abdominal wall, giving it uniform support and compression.

Prof. Howe employs the adhesive straps in a different way. The testicle being suspended in its natural position, he applies the straps spirally, so as to give uniform compression, and finally attaches them to the abdomen so as to take the weight off the cord.

If we do not employ the adhesive straps, the testicle should be supported in a suspensory bandage, or by a sling, which may

be easily continued. As a local application, I prefer Aconite and cold water, or occasionally Belladonna.

A hypodermic injection will give speedy relief to the suffering, and will sometimes effect a cure. I prefer to use it at the affected part, raising the skin of the scrotum.

CHRONIC ORCHITIS.

Chronic inflammation of the testicle is occasionally developed from the ordinary causes, but in the majority of cases it will be found to be the result of gonorrhœa or syphilis. Occurring in persons who have lived *fast*, we have no hesitation in asking such questions as will determine this fact. True, it will make little difference in the treatment, whether it has been produced by repeated attacks of gonorrhœa, but it would make a difference if it could be traced to syphilis.

Symptoms.—The patient describes having an enlarged testicle, which is a source of annoyance from its size, its weight, and unpleasant sensations of fullness, dragging, and occasionally aching. The enlarged organ is in the way, and is constantly getting hurt.

When we examine it, we find the testicle three or four times its natural size, sometimes as large as a goose egg, hard, and sensitive to pressure. In some cases the enlargement will be almost wholly of the body of the testicle; in others it will be in part of the epididymis.

Occasionally it is associated with hæmorrhoids, at other times with an irritable bladder or urethra. I have seen cases in which the general health was markedly affected, but usually there is nothing of this to attract attention.

If syphilitic, we will have the evidence of the lesion in some other form. Whilst we may have acute orchitis with the syphilidæ, the chronic inflammation is usually one of the last of the secondary symptoms, and is associated with maculæ, ulceration and nodes.

Diagnosis.—Though it is easy to determine the enlarged testes, it is not always so easy to say that it is simple inflammation. The diagnosis between an orchitis and enlargement from fluid in the tunica vaginalis is readily determined, as it

is from scrotal hernia. Cystic disease may frequently be determined by the uneasiness and variable degree of hardness. Malignant disease may be determined by the irregular fever, unequal consistence, and nodulated character of the growth. The diagnosis is confirmed by the cancerous cachexia, which is always soon developed in cancerous testes.

PROGNOSIS.—In the majority of cases we may promise a cure, though in most of these cases it will require time and patience. Of course there are some cases that can not be cured. Old syphilitic orchitis has been deemed peculiarly intractable, but even this can be cured.

TREATMENT.—If the general health is good, our treatment will be confined to such special remedies as influence the testicle, and to local applications. If it is impaired, we will adopt the appropriate means to restore health, waste and excretion, and good nutrition.

Among the most efficient remedies I have used is the Iris and Phytolacca. If the orchitis is suspected to be of syphilitic origin, I place great confidence in the Iris. The dose may be five or ten drops four times a day; and if the tongue and mucus membranes are red, a small portion of Donavan's Solution may be added to it. The Phytolacca is combined with the Iris, if the mucous membranes are pallid.

In *irritable* testes Bromide of Potassium will sometimes exert a good influence. It may be given in doses of ten grains, three or four times a day. I have also used the Staphysagria and Pulsatilla in the same cases.

The local application will vary in different cases. When the scrotum is dense, and will bear it, I prefer a solution of Iodide of Ammonium, used in this way:—℞ Tincture of Iodine, (strong) Aqua Ammonia, aa. Let them stand until decolorized, and apply with a camel's hair brush.

Occasionally a dressing of Mayer's Ointment, Black Salve or Ointment of Stramonium, will serve a good purpose. A lotion of Iodide of Potash has also been employed with advantage, as has the Belladonna.

Whatever application we may use in this way, the testicle should be well supported with a suspensory bandage. In some cases the continued use of a water dressing, with such

support, will answer the purpose. In some cases, compresses by means of the adhesive straps, as advised in the acute form, will give the speediest cure.

If the cause is syphilitic, the patient should also receive the appropriate treatment for this. It is true, that a general antisyphilitic treatment will not cure the testes, but it is equally true that it will not get well without this.

PROSTATITIS.

The prostate gland is but a small organ, and seems to serve an unimportant function, yet its diseases are among the most severe and stubborn that we are called to treat. This is to be attributed in great part to its situation and relation to the bladder and urethra. As the neck of the bladder terminates in it, and the urethra is excavated through it, any cause producing enlargement will alter the position of the bladder so as to cause retention and difficult expulsion of urine; and diminishing the size of urethra and changing its course, will cause difficulty in its passage. It seems also to be freely supplied with nerves from the hypogastric plexus, and also from the spermatic, hence all the pelvic viscera sympathize in a marked degree.

Acute inflammation of the prostate may arise from the ordinary causes of inflammation, being excited by a blow or other injury of the part, but more frequently by sitting on something wet and cold—the perineal structures being thoroughly chilled. It may also be caused by an extension of gonorrhœa, by the use of irritant injections, and occasionally by the use of irritant diuretics.

Symptoms.—The patient complains of a sense of weight and tension in the perineum, with deep, tensive pain. There is a frequent desire to pass water, difficulty in its passage, and an increase of pain at the time and afterwards.

Movement increases the suffering so much sometimes, that the patient is confined to his bed, and can hardly change his position. Deep pressure also produces pain.

There is usually considerable constitutional disturbance. In some cases there is marked febrile action for two or three

days; in all there is more than usual irritation of the nervous system.

When the disease is very serious, the difficulty in passing urine becomes very great, and the patient suffers intolerably at these times. Indeed, I have seen cases in which it could only be passed after an injection of Opium per rectum, and in a hot sitz bath.

The duration of the disease is variable. Terminating in resolution, the inflammation may subside in two or three days, or it may continue a week or more. It is very rare for it to terminate in suppuration. Occasionally a case will present, in which the inflammation extends to the cellular tissues adjacent, and an abscess forms in this, finally opening in the perineum, and inclined to terminate in fistula.

DIAGNOSIS.—The location of the symptoms will call our attention to the organs situated at the outlet of the pelvis, and an examination will readily determine the character of the lesion. The pain points just below the scrotum, and an examination at the point elicits deep tenderness. If a catheter or bougie were passed up to the prostatic portion of the urethra, it would meet with obstruction and cause great pain (I do not advise this method of examination.) If not satisfied, a finger passed into the rectum will determine the enlarged prostate very tender to the touch.

PROGNOSIS.—We can generally procure relief within forty eight hours, and an entire removal of the disease. If the person has suffered from previous attacks, we will be governed by the history of the disease.

TREATMENT.—It is a rule in the practice of medicine, that no matter how small the structure involved in inflammation, the treatment will be just as active as if a larger part or organ was affected. Especially is this the case with the specific means we use.

We put the patient upon the use of Veratrum and Gelseminum in full doses, and continue it until the hardness and frequency of pulse has passed away, and the secretions established; then in smaller doses. Cathartics are always injurious, indeed we are careful that the bowels shall not be opened until the acute inflammation has passed by. After

the influence of the sedative, the patient should take the Citrate or Acetate of Potash to the extent of two or three drachms daily, largely diluted with water.

To relieve the local suffering, we may employ the hypodermic injection of Morphia over the gland. Or in place of this, we may use an injection into the rectum of:

℞ Tincture of Opium, ℥ss.
Tincture of Lobelia, ℥j.
Warm Water, ℥ij. M.

The hot sitz-bath may be used for thirty minutes to an hour at a time, if the pain is severe; or a hot fomentation may be employed in its place. I prefer a hot brick wrapped in flannel wetted with Tincture of Opium and Lobelia in water, and placed between the thighs near the perineum, to either the bath or fomentation.

In sub-acute cases, we will occasionally succeed well, with the use of Hamamelis alternated with Staphysagria. Of the distilled extract of Hamamelis, I give twenty drops every three hours; of the Tincture of Staphysagria, ℥j to Water ℥iv, a teaspoonful every four hours. These may be also given during convalescence.

It will rarely, if ever, be necessary to attempt to draw the urine with a catheter. The injections of Opium and Lobelia, the hot sitz bath, and the internal administration of Gelseminum being sufficient.

CHRONIC PROSTATITIS.

Chronic prostatitis is a disease of advanced life, very rarely occurring before the age of 40, and from that to 60 years. Whilst it is more frequently found in good livers, persons who have indulged freely in the pleasures of life, we will occasionally see cases where the person has lived a very regular and temperate life.

It is difficult to determine the cause in many cases. It may result from an acute attack, or from a badly managed or frequently repeated gonorrhœa. But in the majority, it is developed slowly, and comes on like hæmorrhoids, or other slowly progressing diseases.

Symptoms.—The disease pursues a very irregular course. There is all the time an unpleasant sense of fullness and

weight in the perineum, and more or less difficulty in micturition. When the patient has been on his feet for some time, or undergoes unusual exertion, these symptoms are increased.

Then there are violent outbreaks in the disease, arising from over-exertion, from injury, or from cold. The prostate increases in size, becomes very tender, the seat of a deep, tensive, aching pain, with occasional lancinating pain, like a toothache. There is a feeling of tenesmus, with desire to go to stool and pass water frequently. But the passage of urine is tardy, very difficult, and attended with much suffering. In some cases it is almost impsssible for the patient to void urine, and for many hours none is passed. In some cases, the bladder being dilated to its greatest extent, the urine dribbles away involuntarily.

Such a paroxysm may continue but one or two days, or it may last for as many weeks. The sufferer slowly recovers his usual health, and continues to suffer in moderate degree until the next paroxysm.

DIAGNOSIS.—The symptoms point to the urinary apparatus, as the seat of disease. On examination, we find tenderness on deep pressure just below the scrotum, and in persons thin in flesh, we can detect the enlargement through the perineum. An examination per rectum is necessary, however, to determine the extent of the disease. The finger can be passed over the entire gland, determining its size, position, and degree of tenderness.

PROGNOSIS.—Chronic prostatitis has been deemed incurable by most writers, and treatment was confined to palliatives. I think, however, we may succeed in curing the disease in quite a number of cases, and giving very marked relief in nearly all.

TREATMENT.—If called during such paroxysm as described, we would adopt the treatment named for the acute disease. The difficulty in passing urine and its retention will be overcome by the administration of Veratrum and Gelseminum, the enema of Opium and Lobelia, and the hot application. In some of the severe cases I would use the hypodermic injection of Morphia.

In the general treatment, if the health was impaired, such means should be employed as would restore it. In the major-

ity of cases we will find it of advantage to stimulate the skin, kidneys and bowels, so as to get increased waste. Then by the use of bitter tonics and restoratives, and a nutritious diet, get an active nutrition and renewal of tissue. We will sometimes find, as in other forms of chronic disease, that this is the most important part of the treatment; indeed, that it will accomplish the object without specific means.

The special remedies that I have relied on in these cases are, the Hamamelis, Staphysagria, Collinsonia and Phosphorus. Of the first I use the distilled extract (Pond's), in doses of twenty to thirty drops, four times a day. Of the Tincture of Staphysagria, ℥j. to Water, ℥iv.; a teaspoonful four times a day; Of the Fluid Extract of Collinsonia, ℥ij., Water, ℥iv.; a teaspoonful four times a day. Of the Tincture of Phosphorus, ℥ij., Water, ℥iv.; a teaspoonful four times a day. These may be given singly, or may be alternated; and changed sufficiently often to continue the good effect.

As a local application, I prefer a small seton, as being less annoyance than any other means of counter-irritation.

When there is considerable urethral irritation, the prostate offering an obstruction to the passage of a bougie, we will sometimes find advantage from injections. The solution of Sulphate of Hydrastia acts very kindly, as does a weak solution of Carbolic Acid. The injection is used with an Acton's long-tube syringe.

PROSTATORRHŒA.

Associated with spermatorrhœa we not unfrequently find an excitation of the prostatic and Cowper's glands, and possibly of the vesiculæ seminales. These glandular structures furnish an increased secretion, having a mucoid appearance, and slightly resembling seminal fluid, which is passed with the urine, on going to stool, on lifting or straining, and in some cases, when profuse, there is an almost constant oozing. The patient's mind having been excited by what he has been told by designing persons, calling themselves physicians, or the private circulars he has received from the same source, he is constantly on the look-out for the discharge, and is excessively troubled by it, so much so that he is not unfrequently on the verge of insanity.

Not only do we find this discharge in those who truly have spermatorrhœa, but quite as frequently where that disease does not exist, the prostatorrhœa being the only trouble. The sufferer has, however, been told that he is suffering from the former affection, and religiously believes it, the influence on the mind being such as to frequently impair the general health. It is useless in these cases to attempt to persuade them of the mistake in the nature of the disease, and when we arrest the discharge we invariably get credit for curing a case of spermatorrhœa.

In rare cases the bladder is the principal seat of the disease, giving rise to irritation of adjacent parts. Generally, the chronic inflammation is confined to the trigone vesicæ, giving rise to but few of the common symptoms of cystitis, though there is an increased secretion of mucus, and frequently copious deposits of the triple phosphates.

TREATMENT.—What treatment can we adopt in these cases, that will relieve this irritation, and arrest this discharge? as upon this will frequently depend the success of our treatment for spermatorrhœa. If we are to successfully manage this affection we must gain the confidence of our patient, and cause him to believe that we can cure him. If this prostatic discharge continues, we can not attain this end; if we arrest it, he has visible assurance of the efficacy of our medicines. Spermatorrhœa is, to a considerable extent, a mental disease, and unless the mind can be favorably influenced, there is but little prospect of a favorable result.

Those who have had much to do with these affections will bear me out in saying that nothing favorable may be expected from injections into the urethra, no matter what their character, and in many cases most serious results have followed their use. Where there is irritation of the prostatic portion of the urethra, marked by burning or pain on passing water, Lallemand's porte caustique may sometimes be used with advantage, otherwise all irritant local applications are useless. If there is much excitement of the genital organs, with frequent erections, nocturnal emissions or masturbation, this *must* be controlled, and may be very readily by any irritant material applied to the penis, that will make it so sore that erection is impossible. Tincture of Cantharides in small quantity is

among the simplest remedies. There should be no hesitation in the use of this means, and to such an extent as to accomplish the object.

As to internal measures, I have used all that have been recommended, but have not attained the success with the common means that I was led to expect. Agrimonia, Hydrangea and Collinsonia seem to have some influence, but not sufficient for a cure. Buchu and Uva Ursi are inferior to the first named. Pareira Brava has, in some cases, a decided influence, as has also Cubebs, Hydrastis and Carbonate of Iron, aa. The Tinct. of Pulsatilla and Staphysagria, combined in the proportions of ʒj to water ℥iv, has given good results. The distillate of Hamamelis, alternated with Pulsatilla, is the remedy when there is fullness of the perineum; Marcotys is used when there is tensive pains in the perineum; Rhus when there is burning pain, and Apis when the itching is annoying.

ONANISM.

Self abuse is practiced, to some extent, by nearly all, at the period of adolescence. But with the majority it is only occasional, and as they attain age, they become disgusted and abandon the habit. With a few, however, when once commenced, it grows with their growth, and at last obtains such mastery over the mind that it is broken up with difficulty.

It may effect quite young children, as we may see Diseases of Children pp. 350, 351. Usually it is commenced about the age of ten to fourteen, though its deleterious effects are not marked until early manhood.

The results of self abuse are—weakness of the reproductive organs, impairment of the mind, functional nervous disease, spermatorrhœa and impotence.

Symptoms.—The evidences of onanism are at first circumstantial, the boy is pale, not well nourished, has a downcast appearance, loves solitude, and has difficulty in looking another fair in the face. If the general health has suffered much, we will find the appetite irregular, the bowels constipated, the tongue coated in the center, and the breath bad.

Noticing the symptoms, as above, we may impart our suspicions to the parents, and a watch may be kept upon the lad

to determine the fact. When the suspicions amount almost to certainty, we speak to him privately about it, and obtain a confession of the abuse. Free confession is one-half a cure in this as well as many other peccadilloes.

TREATMENT.—When the difficulty has not gone too far, we will find that a private conversation obtaining an admission of the fact, and showing the evil of the practice, will generally be sufficient. We appeal to the boy's pride and honor, as well as show him the final result, if he continues. When there is considerable nervous irritation, we will do well to give—

℞ Tincture of Pulsatilla, ℥ss,
Water, ℥iv. M.

A teaspoonful three times a day. And if there is an irritable condition of the reproductive organs—sexual erythema, we may administer—

℞ Tincture of Staphysagria, ℥ss.
Water, ℥iv. M.

A teaspoonful three times a day. When the general health is impaired, the patient may be put upon the use of the Tincture of Muriate of Iron with Glycerine.

When the disease has passed beyond the power of the patient to stop it, or when he does not choose to exert this power, we have but one course to pursue; this is, to make the penis so sore that self abuse is impossible. In this case I prefer that it be done without the boy's knowledge. Vinegar or Tincture of Cantharides applied to the penis when the lad is asleep, and reapplied as occasion requires, is all that is necessary: it requires to be applied to but a small surface. Circumcision is an excellent treatment for some of these cases, breaking the disease up at once.

SPERMATORRHŒA.

Physicians have been greatly at fault in not giving spermatorrhœa that consideration that it deserves, and of allowing sufferers from the disease to fall into the hands of charlatans who have but one object—to fleece the patient. Whilst the sufferer has reason to feel that the disease is disreputable and a disgrace to his manhood, there is no reason why the physician should feel that any disgrace or loss of self-respect should attach itself to him if he treats it honestly, and in the the ordinary course of business.

CAUSES.—The most frequent cause of spermatorrhœa is masturbation, but it may be occasioned by excessive venery, constant lascivious thoughts, gonorrhœa, diseases of the rectum and bladder, or any cause that will excite and continue an irritation of the genital organs. It comes on slowly, as a general rule, and when the result of masturbation, may be two or three years in its developement. The subject of this vice usually has no idea of what it is leading to, and continues the practice until the frequent occurrence of nocturnal emissions, induces such loss of strength and feebleness of mind as to cause inquiry.

Spermatorrhœa manifests itself in the form of nocturnal emissions, which at first are voluntary, and occur under the influence of a lascivious dream, and are attended by the usual feelings, but at last without sensation or consciousness of the individual. In some cases, the discharge may occur when the patient goes to stool, or after micturition, or from straining or lifting, though in very many of these cases, where the persons are much alarmed, we will find that the discharge is simply mucus from the urethra, prostate gland or bladder. When the habit becomes fully established, the emissions will occur as often as once or twice a week, or in some cases, two or three times in the twenty-four hours.

The seminal fluid is changed in character, being thin, without ropiness, and of a very strong odor.

SYMPTOMS.—The most common symptoms at the commencement of spermatorrhœa is a shyness, inability to look a person in the face, and a desire to avoid company, especially strangers. It is noticed that his general health is becoming affected, he is weak, can not stand prolonged exertion, complains of headache, nervous trembling, palpitation of the heart, and dizziness. The appetite becomes variable, sometimes voracious, but generally poor; the bowels are constipated, the skin pale and sallow, the hands and feet are cold, and he rests badly at night. At a still further advanced stage of the disease, the loss of strength becomes more marked, as does the depression, nervousness in the presence of company, and the other symptoms named. Frequently they will not look any person in the face, if it is possible to avoid it, and shun company as much as possible. The mind now becomes

seriously affected; there is loss of memory; he is cowardly; has no faculty for business; and, as Dr. Gross well remarks, "is physically and mentally emasculated." If it continues it will terminate in epilepsy, insanity or idiocy, and the physical prostration in some cachectic disease, as phthisis, acute hydrocephalus, diabetes, etc.

DIAGNOSIS.—The diagnosis of spermatorrhœa is very difficult, as, though some of the symptoms named are very characteristic, there are none but what may be produced from other causes. A careful analysis of symptoms will always lead the practitioner to suspicion spermatorrhœa as the cause, when, with proper care, a full admission, with a complete history of its origin and progress, may generally be obtained from the sufferer. Considerable tact will sometimes be necessary, but usually the conversation and questions can be so guided as to elicit the major part of the information necessary without exciting the patient's suspicions, and when the clue is thus obtained, it is easy to follow it up.

PROGNOSIS.—The prognosis is favorable in a majority of cases, especially if appropriate treatment is adopted early in the disease. There is a class of cases that are beyond the reach of medicine, and will sooner or later terminate fatally. Not unfrequently we find that the patient's mind has been morbidly excited by the reading of advertising disquisitions upon the subject, or by consulting some of the numerous leeches who pretend to make private diseases a specialty. This excites an unnatural fear, and his attention being fixed constantly upon the subject, his imagination is so wrought up, that serious injury to the health ensues, and he will absolutely have many of the symptoms described. Thus, I have seen cases that had followed this course, and who had become seriously diseased both in mind and body, and yet had not at any time had spermatorrhœa.

TREATMENT.—A careful examination of the genital organs should be made to determine the existence of increased sensibility, and with a bougie to determine the existence of irritation of the urethra. In some cases the bowels should be kept open by a mild cathartic and the use of the cold water injection, thus removing a permanent cause of the irritation of

these organs. In other cases we will find an irritation of the bas-fond of the bladder, with increased secretion of mucus, and large deposit of the triple-phosphate; this will continue the irritation of the sexual organs in spite of all remedies given for its control, and must be removed, if we expect to effect a cure. It can usually be readily accomplished by the use of a tepid water injection into the bladder, sufficient to thoroughly wash it out, and, in bad cases, followed by an injection of Solution of Borax or Boracic Acid, or the means named under the head of cystitis. Occasionally the use of leeches to the perineum, or counter-irritation, or the warm sitz bath, will relieve the increased sensibility. If, on passing the bougie, an irritable point is found, generally in the prostate portion of the urethra, it should be cauterized with Lallemand's Porte Caustique, the patient using the demulcent diuretics for some days afterwards.

An important element in the treatment of spermatorrhœa is to obtain the patient's confidence, and establish a belief that he is improving. Without this it is impossible to succeed, even with the best remedies, and with it we succeed with very simple means.

As in most cases there is some prostatorrhœa, giving a slight discharge of transparent or opaque mucus after passing urine or going to stool, upon severe exertion, and whenever there is sexual excitement, this will deserve our attention first. The patient is constantly on the watch for this secretion, never passes urine without pressing the urethra to see if it will appear, until at last a morbid anxiety and fear is developed which forms a principal part of the disease. This discharge, as we have already seen, may be arrested by the use of Tincture of Staphysagria, alternated with Tincture of Phosphorus. The distilled Extract of Hamamelis is also a valuable remedy for this purpose. These remedies are, also, among the most important for the relief of sexual irritation, and we, therefore, accomplish two objects—arresting the prostatic discharge, and relieving the patient's mind; and a diminution of sexual excitement.

To relieve irritation of the nervous system, no remedy will be found better than the Pulsatilla in small doses. Among the unpleasant symptoms is the extreme nervousness and fear of something unpleasant.

Spermatorrhœa arises from *debility* of the sexual organism, and is associated with a general impairment of nutrition and of function. It has been the common practice to prohibit the use of tonics and restoratives, and animal food, as causing increased excitation of the reproductive organs. If the excitation is from debility, then a cure will result when we have restored the general health, and obtained good digestion, blood-making and nutrition, and it will never be attained otherwise. Taking this view of the case, I employ those stomachic bitters that will give a good appetite, Iron, the restoratives, and a good diet. I prefer that the patient should have active exercise—hard work—so that when night comes he may feel tired.

Nocturnal emissions, as a general rule, occur in the latter part of the night, when the bladder is distended with urine. I am satisfied that such distension is an exciting cause, and I always give the following directions to the patient: Drink but little in the evening; pass urine on going to bed; form a habit of getting up at one, two, or three in the morning for this purpose; always get up on first waking in the morning. We find that a morning sponge bath, of salt water, is an aid to the treatment. It should be employed with brisk friction to the back, the abdomen, and perineum.

IMPOTENCE.

Men value their sexual powers beyond any other faculty of the body; and nothing is a source of such annoyance as impairment of function and fear of impotence. A man need not be a Sybarite to have these feelings, for it is the case with the youth devoted to pleasure, as with the parson in gown and bands, or the grave and reverend senior who, from appearance, we would think had passed the period of care in this respect.

The causes of impotence are such as impair the innervation, nutrition, and circulation of the virile organs. It is frequently caused by onanism and by sexual excesses, and is produced by long continued and severe spermatorrhœa. But we find it as well in those who have never been guilty of self abuse, indeed who have had but little sexual passion. It is in part a natural defect, increased by an abnormal sensitiveness to it, and consequent disordered innervation.

SYMPTOMS.—It varies greatly in kind and degree in different cases. In one there is a total want of power to effect an erection. In another the erection is so brief that the act can not be completed. In a third, the seminal fluid is ejected before the erection is complete. In a fourth, the ordinary excitement of copulation is not sufficient to effect the ejection. In a fifth, intercourse is not pleasurable, and gives satisfaction to neither party. In all, the patient feels badly, is nervous, disgusted with himself, and prays anxiously for relief.

In some we will find atrophy of the testes, and imperfect growth and nutrition of the penis. In the severer cases the impotence is real, and the person has not the capacity to propagate his species, except at rare times, and sometimes not at all.

TREATMENT.—If there is impairment of the general health, the basis of treatment will be a judicious tonic and restorative course. Occasionally we will find this sufficient.

The special remedies we employ to strengthen the reproductive functions are Nux Vomica, Ergot, Iodine, Phosphorus and Belladonna. These are employed in the usual doses, and associated with the tonics and restoratives. I have been in the habit of prescribing for the simpler of these cases

℞ Extract of Nux Vomica,
Iodine, aa., grs. vj.
Hydrastine, ℥ss. M.

Make thirty pills, and give one four times day. The Prussian Phosphuretted Oil, in doses of five drops three times a day, is a valuable addition to this. In one bad case I administered this in combination with Cod Oil and solution of Strychnia with the most gratifying results.

I generally direct the salt-water bath to the spine, abdomen, perineum and genitals, to be used on rising in the morning, with brisk friction. Instead of directing that he experiment with the virile member to determine whether he is getting well, I have him live a life of absolute continence, if unmarried, and but occasional intercourse if married. This I deem of the greatest importance.

In those exceptional cases where the organs have been exhausted by excess, and where the person wishes medicine by which he may continue his sexual pleasures, good morals would suggest that we withhold our aid; yet, as medicine is

an article of merchandise, and he will get it of some one else, if not of us, we may prescribe the Iodine pill as above.

It is necessary that the patient should have the disease so explained to him, that the morbid fear that is so frequently noticed shall be removed, and for this purpose we will try to gain the patient's implicit confidence. If this is not done, we will frequently find our remedies unavailing. The patient should be directed to take exercise in the open air, to use a daily bath, confine himself to a nutritious and not stimulating diet, and sleep on a hard bed. An entire abandonment of masturbation, and sexual excitement, as far as possible, is imperative, and he should likewise be cautioned not to let his thoughts turn to these subjects. There is no doubt but that the will can materially aid in controlling this unnatural excitation, and if possible it should be made to assist in the cure.

I will conclude this subject with a quotation from Dr. Gross:

"The practice of onanism often engenders a want of confidence in young men, in regard to their ability to consummate the marriage contract. In fact it renders them sometimes temporarily impotent. I have repeatedly known this to be the case after the marriage had taken place, much to the annoyance both of the patient and the surgeon. In general, however, the defect is rather in the mind than in the body, and may be easily corrected by entire abstinence for several weeks, and by the use of a little medicine, such, for instance, as a few drops daily of equal parts of Tincture of Nux Vomica, Chloride of Iron, and Cantharides, with the assurance of speedy recovery. In this way, confidence is restored, and the difficulty, of course, soon vanishes. Occasionally the obstacle is caused by too great an egerness on the part of the individual, or by too frequent indulgence soon after marriage. At other times, again, the erections are imperfect, and the act is prevented by a premature emission. These effects frequently subside of their own accord; when they do not, an attempt should be made to correct them by a judicious course of treatment, especially the use of tonics, the shower bath, galvanism, and attention to the bowels and secretions, aided, if the parts be morbidly sensitive, by cauterization of the urethra, and mildly astringent injections."

CHAPTER VIII.

DISEASES OF THE ORGANS OF LOCOMOTION.

Under this head we may include all affections of the motor apparatus, the bones, articulations, and muscles, with the various tissues that enter into their formation, or are connected with them. Most of these affections are quite painful, and some very serious. They are more annoying on account of the difficulty of motion; and frequently the impossibility of keeping the structure at rest, is one of the most serious parts of the disease.

RHEUMATISM.

Rheumatism has been variously classified—sometimes as a disease of the blood, at others as involving principally the nervous system, again as arising from deficient secretion, and lastly, from an imperfection in the process of digestion and assimilation. Undoubtedly all of these elements aid in making up the disease, as we have now sufficient evidence that it depends upon some material (lactic acid), generated during digestion in some cases, and in others produced during the breaking down of tissues; that this impairs the quality of the blood and unfits it for the performance of its proper functions; that its non-removal by the excretory organs is dependent upon their impairment; and lastly, that these associated, produce disordered innervation, and when the material is deposited in the tissues, it sets up a peculiar form of inflammation which we term rheumatism.

Four forms of rheumatism may be distinguished, though they run into one another, and sometimes rapidly change from one to another. They are, rheumatic fever, acute inflamma-

tory rheumatism, sub-acute rheumatism and chronic rheumatism. The causes of rheumatism are, cold from sudden changes of temperature, arrest of secretion from other causes, imperfect digestion, and causes that depress the nervous system.

SYMPTOMS.—*Rheumatic fever* usually makes its appearance after exposure to cold, followed by sudden arrest of secretion. It is ushered in with a marked chill or rigor, lasting from one to six hours, during which time, the patient not only complains of being cold, but of pain in the back and head, and a dull aching and soreness in all parts of the body. The fever that follows is usually high; the skin hot, but frequently slightly moist; the pulse hard, and from 100 to 120 beats per minute; the tongue coated white; appetite lost; sometimes nausea and vomiting; bowels constipated, and urine scanty and high colored. These symptoms usually increase up to the second or third day, when the fever is very intense; after this it continues without change up to the fifth, seventh, or, in some cases, the fourteenth day. There is more or less pain in all parts of the body, and sometimes we find it locating temporarily in the joints of the fingers, wrists, elbows, knees or feet, sometimes continuing very steadily in one or two places, but rapidly changing in others. Usually the swelling in these cases is not very marked, but sometimes the contrary is the case, when the local affection resembles the next form of the disease. Occasionally the fever runs so high as to produce delirium, which is followed by prostration, and a low typhoid condition.

Acute inflammatory rheumatism almost always commences with a chill, sometimes with a marked rigor, and following this more or less marked febrile action. In some cases we will find the fever running as high for three or four days as in the preceding case, being remittent in form, with evening exacerbations and morning remissions; it gradually subsides after this, until it is only marked in the evening. In other cases the fever is not very severe from the commencement, seeming to depend more on the local disease than on any general or systemic cause.

The pulse is usually broad, open and bounding, and from 90 to 110 beats per minute; all the secretions are arrested, the skin in some cases being harsh and dry, in others hot but

moist, with sometimes profuse secretion; the tongue is covered with a whitish coat, the mouth is dry and the appetite very poor, or entirely gone.

With the coming up of febrile action, and sometimes before, the local affection becomes manifest; most usually the disease affects the large joints, frequently the smaller ones, as of the fingers; and in some cases a group of muscles, as of the calf of the leg, the muscles of the thigh, abdomen or arm; and again we find it confined to aponeurotic expansions, as the dorsum of the foot or hand, or the plantar and palmar surfaces.

If a joint is the seat of the disease it becomes swollen, red, hot and painful; the pain being most acute, tearing, burning, gnawing, tensive or lancinating. It is not usually constant as to intensity, but comes on in exacerbations, in which the intensity of suffering is so great as to make the patient cry out. In other parts, the swelling seems to be a mere puffiness of the part, though usually the part is exquisitely tender. The local lesion is so severe, that the part is rendered entirely useless, the slightest movement aggravating the pain, and the patient can not bear the slightest pressure, even of the bed clothes. In some rare cases the part does not seem red, but more or less blanched.

As the local affection progresses, in some cases, the swelling increases, as well as the tenderness, until it seems that the part can not get larger. Very often, however, we find the local disease changing its location, and shifting from joint to joint, and from part to part, and seeming to be lit up in its new location in a few hours to its original intensity; this is termed a *metastasis* of the disease. The part left is not by any means well, though the pain has disappeared, and the swelling and redness is to a considerable extent gone; there is still some tenderness on pressure, and the part is weak and useless, regaining its strength slowly.

The disease lasts a variable length of time; in some cases it may be arrested in three or four days, in others from the seventh to the fourteenth day; and if allowed to run a regular course without interference saving good nursing, it will terminate usually from the second to the sixth week; and in severe cases it may run this long or longer, under the best of treatment. During its progress we may expect great variation in the general as well as local symptoms; the fever at times be-

comes more intense, and is attended with disturbance of the nervous system, sometimes amounting to delirium. The disease gradually declines, the fever passing off, and the pain, swelling and redness slowly leaving the parts affected. Even when the pain has ceased, and the parts have resumed to a considerable extent their former condition, they are still very weak, and marked twinges give notice that they are not yet n a state to bear rough usage.

In *sub-acute rheumatism*, there is usually but little fever; the pulse may be increased five or ten beats per minute, and be more full and bounding or hard, the skin harsh and dry, the tongue coated, the appetite somewhat impaired, bowels constipated, and urine scanty and deeper colored. These symptoms follow instead of preceding the local affection. One or more parts may be affected, the larger joints suffering most frequently, the smaller ones next, and the aponeurotic expansions and muscles least. When a part is attacked, it commences to swell and becomes hot and painful, though in many cases it is not reddened. The pain, as in the preceding case, is gnawing, tearing, tensive and contusive, or lancinating, though usually not so severe as in the acute form. It does not change its position so frequently, but still a metastasis is not uncommon. It is full as stubborn as the more acute malady, and, in fact, I prefer to treat the more acute forms of the disease.

We have heretofore seen that rheumatism may attack the heart by metastasis, and that this is one of the most severe complications of the disease. It is evidenced by the feeling of oppression at the præcordia, pain of a lancinating, tearing character, and faintness, more or less difficulty of breathing, anxious countenance, and the small and rapid pulse, symptoms which can not very readily be misunderstood. Rheumatism may affect the eye, producing rheumatic ophthalmia, or the structures of the ear, the brain, the membranes of the spinal cord, and the sheathes of the nerves, and to some extent the stomach and alimentary canal.

DIAGNOSIS.—We have but little trouble in making the diagnosis of rheumatism, the swelling, heat, and peculiar character of the pain being generally sufficient. It is true, that in cases of disease of the bones, or of the cartilages or synovial membrane of a joint, it is sometimes almost impossible; yet

the character of the pain, the general condition of the system, and the fact that rheumatism is rarely confined to one point, will frequently enable us to decide. Rheumatism of the back, or lumbago, is sometimes mistaken for disease of the kidneys or spinal cord; but if we recollect that in disease of the kidney we will usually have retraction and pain in the testicle, change in the character of the urine secreted, and more or less constitutional disturbance, peculiar to suppression of urine; and that in disease of the spinal cord to this extent, we would have disturbance of all the nerves given off below, we will not readily make the mistake. Neuralgia is very frequently confounded with rheumatism, and it is sometimes almost impossible to distinguish them; but in a majority of cases, the pain being exquisitely sharp, tearing or lancinating, and in the course of a nerve, will enable us to see that it is neuralgia.

PROGNOSIS.—The prognosis in rheumatism is almost always favorable, and in the exceptional cases the danger is more from the complication or metastasis than the original disease. But when we come to determine the time that the disease will last, we find ourselves in the dark. It runs a very variable course if not treated, is sometimes very amenable to remedies, and in others is not favorably affected by any measures adopted,

POST-MORTEM EXAMINATION.—If located in the articulations, we find them swollen and exhibiting evidences of inflammation. The principal enlargement is caused by effusion into the cavity of the synovial membrane, which is usually slightly thickened, and in some cases the articular cartilages are softened. The synovia frequently differs from its healthy condition by being more viscid, whitish, or having more or less flocculent material floating in it. If the muscles or tendinous aponeurosis were affected, we may or may not have the evidences of inflammation in addition to the swelling. If the serous membrane, the pericardium, pleura, or membranes of the spinal cord, are the parts diseased, we will generally find evidences of inflammatory action, and more or less effusion, with adhesions or coagulable lymph on the free surface, or flocculi in the fluid effused.

TREATMENT.—In rheumatic fever, I usually commence the treatment with the use of the special sedatives and anti rheu-

matics: ℞ Tincture Aconite gtt. x., Tincture Macrotys gtt. xxx., Water ℥iv; a teaspoonful every hour. If the pulse is full and strong, Veratrum is used in place of the Aconite; and if one of the other anti-rheumatics is indicated, it replaces the Macrotys. In addition to this, the patient may be thoroughly washed in soap and water, and clothed in flannel, and placed between blankets. Subsequent bathing will depend upon the condition of the patient, though as a rule, ordinary bathing does harm rather than good. During the second and third day, we may add a solution of Acetate of potash to the treatment, and if there is a tendency to perspiration at any period it may be assisted by the use of Asclepias.

The anti-rheumatics in common use are the Macrotys, Bryonia, Apocynum, Phytolacca, Sticta, Colchicum, Rhus and Eupatorium. There are others, but a study of these will be sufficient here.

Macrotys is especially the remedy for rheumatic fever, muscular pain, skin hot but moist, tensive pain as from contraction.

Bryonia is the remedy when the pain simulates that of inflammation of serous membranes; the pulse is hard, wiry; pain in head from forehead to occiput, flushed right cheek, skin dry.

Apocynum is the remedy when there is puffiness or œdema of tissue, either of the part affected, or of the feet, hands, or eyelids; pulse full.

Phytolacca is a remedy when there is enlargement of lymphatic glands, or sore mouth or throat; the urine is whitish and somewhat opaque.

Sticta is a remedy when there is pain in the shoulders, neck and occiput; or when associated with an irritative cough.

Colchicum is a remedy when there is sudden tearing pain, increased by mental exertion, and by worry, the patient being very irritable and uneasy.

Rhus is the remedy when the pain is burning; there is frontal headache, the peculiar red papillæ of tongue, and small, sharp pulse.

Eupatorium is the remedy when there is frequently recurring chilliness, followed by hot skin, sweating; pulse full, soft.

To these I may add the alkalies and acids, which are occasionally among our best anti-rheumatics.

Usually as soon as the pulse is brought down, we may administer Opium at night to induce sleep. As soon as secretion

is established, we find it important in many cases to employ Quinia, giving it during the morning remission in quantities of from eight to twelve grains, repeating it daily, until the fever is arrested.

In acute inflammatory rheumatism, a very similar treatment is pursued in the first stage. We may employ the special sedatives, with diaphoretics, and an alkaline diuretic, as there named; or, we may first give an emetic, followed by a moderate cathartic, and then the sedatives, and measures to promote secretion.

The same anti-rheumatics are employed as in the case of rheumatic fever, and if the indications are distinct, the disease yields readily. But when they are not well defined, we are obliged to follow the general plan laid down for the treatment of inflammation and associate fever, being careful not to add a drug disease to the inflammation or rheumatism. The vapor bath, or warm bath, is associated with these means as in the preceding case. Of the alkaline diuretics, I prefer the Citrate of Potash, to the extent of three drachms daily.

Among the remedies in common use none has a greater reputation than Salicyllic Acid. I think it indicated when the mucus membranes are pallid, and there is tendency to perspiration. Two grains every three hours will give the desired results, but the dose may be increased to five grains. Very frequently it is used combined with Potash or Soda, which renders it soluble. I frequently prescribe ℞ Salycillic Acid ʒi, Acetatate of Potash ℥ss, Water ℥iv, a teaspoonful every two to three hours. Be sure that the Salycillic Acid is made from the Oil of Wintergreen.

I have been tempted to believe that, when indicated, the administration of a simple solution of Carbonate of Potash, and its local application, the part being kept warm, and the use of a sufficient quantity of Opium to quiet pain, the bowels being kept open with the Podophyllin pill, would answer a better purpose than any other treatment. The Tincture of Eupatorium, taken internally and locally applied, has answered a good purpose in cases where there was unnatural perspiration.

As regards local applications, they are sometimes useful in relieving pain, but at others seem to have no effect. Various remedies are employed, stimulant, narcotic, sedative, rube-

facient, etc., and there are no means of determining in a given case, which will prove the best; equal parts of Aqua Ammonia and Olive Oil answer a good purpose as a stimulant when applied by friction, and as a rubefacient when covered to prevent evaporation. A most excellent liniment for rheumatism may be extemporized by ordering,

℞ Aqua Ammonia, ʒij.
Olive Oil, ʒij.
Chloroform,
Tincture of Aconite, aa. ʒiss. M.

Shake thoroughly when using and apply with flannel. The common Chloroform Liniment,

℞ Tincture of Aconite,
Chloroform,
Oil of Sassafras,
Alcohol, aa. ʒi. M.

Is a very good application to relieve pain; equal parts of the Tinctures of Phytolacca, Stramonium and Belladonna, continuously applied, or the application of a warm decoction, is sometimes very useful in articular rheumatism; hot applications of any kind give relief in some cases, but in others seem injurious, and may be well replaced by cold water. Indeed it has been recommended to apply a bladder filled with ice and salt, to the inflamed part as a means of arresting pain and diseased action, and though I do not doubt its efficacy in some cases, I would fear destruction of tissue from its indiscriminate use. A simple solution of Carbonate of Potash in some cases, and wrapping with cotton wool, or, as I prefer, wool itself, is many times preferable to any of the many liniments made use of. If there is great tumefaction and pain in consequence, the use of cups at a short distance from the diseased part, may be useful.

I am satisfied that woolen clothing is of great importance in the treatment, and, if possible, get my patient divested of every thing cotton, and in bed between blankets; perfect quietude should be maintained, especially of the part affected, as rest is an important element of cure.

The patient may be permitted to drink freely, and allowed a moderately full diet, if well digested. If a stimulant is necessary, native wine will usually be found the best. All complications must be met as they arise, in the manner laid down under their proper heading, and especially should the physician be on the lookout for the symptoms of cardiac disease.

In sub-acute rheumatism, we will in many cases obtain most marked results from the use of the Tincture of Macrotys. For an entire season, I did not have occasion to resort to any other remedy, if we except means to keep the bowels in a soluble condition. This brings up the fact that in different seasons different remedies are useful. Bryonia has served an equally good purpose in some years. The Rhus is an admirable anti-rheumatic when you have the indications for it. Sticta is a wonderful remedy when the patient complains of pain in neck, shooting to shoulders and back of head, and the Salycillic Acid is the remedy in some seasons. Colchicum may be used with advantage in some cases, especially where associated with gout; I use the English tincture of the seeds, in doses of from ten to thirty drops every three hours. A solution of Citrate of Potash, so that two or three drachms will be taken in the course of twenty-four hours, with the addition of Lemon-juice in some cases, answers a very good purpose. The local applications may be the same as in the preceding case.

CHRONIC RHEUMATISM.

Chronic rheumatism most frequently results from the acute, or sub-acute form, but in some cases may be slowly developed independently of them. In some cases it has its origin in imperfect digestion and assimilation, which we would readily account for, on the theory that an increase of lactic acid was the cause of the disease. In others it seems to have arisen from, and is dependent on deficient action of the excretory organs, and possibly on some change in the process of retrograde metamorphosis, by which the broken down tissues are converted into material fit for excretion; and in others, upon some derangement of innervation. It is true that all this is speculative and not proven, but we have good reasons for these opinions. Acting on them in the administration of remedies, we find ourselves successful, so far as the general disease is concerned, but not always with the local malady.

SYMPTOMS.—As regards the general health of the patient, we find it varies greatly in different cases. In some there is mani-

fest derangement of the stomach, various unpleasant sensations, as of fullness, pain, acidity, flatulence, etc., occurring after a meal, and showing that digestion is not well performed. In such cases we find the patient reduced in flesh and strength, and exhibiting evidence of marked general cachexia. In others the secretions are manifestly at fault, the kidneys acting poorly, or the skin is harsh and dry, or relaxed and flabby, and the bowels irregular. It is true that we find cases of chronic rheumatism, in which we can not detect the slightest lesion, except the local rheumatic disease; what loss of flesh and strength there is being attributable to the continued suffering and loss of rest resulting from it; metastasis occurs in the chronic as well as the acute disease.

It most frequently affects the articulations, they being swollen, tender and painful; one or more may be affected at the same time, usually not more than two, and the amount of swelling, discoloration and pain, varies in different cases; sometimes the tenderness and pain are exquisite, at others it is not very marked; the articulation is in some cases entirely useless, motion or pressure giving rise to severe suffering; at others, though lame, it may still be used. In some cases it takes the form of synovial dropsy, it being very evident that the enlargement is almost entirely dependent upon effusion into the joint. At others the enlargement seems to be dependent upon material within the synovial membrane, but it is not nearly so mobile as before. In other cases there is marked enlargement of the articular extremities, or a dull, heavy, gnawing pain, with great tenderness, when the bones are placed so as to give rise to pressure on their extremities. In other cases the deposit is undoubtedly outside, involving ligaments, tendons, and muscles that pass between the two bones, causing relaxation in some cases, contraction in others, thus giving rise to deformity. In some cases this is very marked, bones being dislocated, or tendons so shortened as to produce unnatural flexion or extension, or to change the position of the bones, as in the case of the knee joint, the articulation of the tibia being so changed as to produce knock-knee, and turn the toes outward; or, in the case of lumbago, or rheumatism of the dorsal or lumbar portions of the spine, giving rise to spinal curvature and other distortions. If it attacks a group of muscles, we may find them gradually shortening, until a limb is rendered

entirely useless, as in the case of contraction of the ham-string muscles, and flexion of the knee, and finally terminating in the almost entire change of the muscular structure.

Diagnosis.—In some cases the diagnosis is not difficult, the rheumatic symptoms being well developed, but in others, it is almost impossible to distinguish between this and other diseases of the articulations, especially if but one joint has been affected. We may, as a general rule, say, where more than one articulation is affected during the continuance of the disease, that it is rheumatism; if but one, and there are no general symptoms to be depended upon, especially if the patient has not been subject to rheumatism previously, that it is some other affection.

Prognosis—The prognosis is not always favorable in chronic rheumatism, though it is so in a majority of cases. It is true that the disease has but little tendency to a fatal termination, unless it results in suppurative inflammation of the larger articulations, yet there is in many cases such change of structure that it is impossible to effect a cure, and in some cases the constitutional affection seems to be dependent upon causes beyond our reach.

Post-Mortem Examination.—When the joints have been the seat of the disease, we find them variously altered. In some cases there seems to be nothing but an increase of the synovia; in others the synovial membrane is thickened, especially the false ligaments; in some cases roughened, covered with shreds of false membrane, or adherent, coagulable lymph, and the synovia more or less viscid, shreddy, and in some cases purulent. The articular cartilages are sometimes softened, at others eroded, and in some cases completely destroyed. The articular extremities of the bones are not unfrequently enlarged, and the ligaments, tendons, and muscles contracted or relaxed. When affecting other parts, if of long duration, it may so change their structure as to leave little resemblance to their original condition.

Treatment.—The general treatment of chronic rheumatism will have to be varied to correspond with the symptoms in each case. If the digestive apparatus seems to be prominently

affected, the means recommended under the head of dyspepsia will be appropriate. It must not be forgotten that imperfect digestion lies at the root of very many cases, and we can only get rid of the tendency to rheumatism by correcting these derangements. It is very essential to make the diagnosis between chronic rheumatism affecting the entire system, and that which has become exclusively local. In the first case I have obtained marked advantage from the use of an emetic repeated twice or three times a week; it seems to rouse the entire system, and give free circulation to the blood, and improve all the functions. The bitter tonics and Iron are indicated in all cases where there is a tendency to anæmia, or where there is a want of tone in the digestive apparatus.

Even in chronic rheumatism the special remedies named for the acute affection may prove curative; the more marked the indications the more certain the action of the remedies. Indeed this may be said of all remedies which we have so studied as to know the relation between disease expression and drug action. Other special remedies besides those classed as anti-rheumatic may thus prove curative.

When there are no special indications, we employ the means which stimulate the processes of retrograde metamorphosis and waste. Among them the alkaline diuretics hold a prominent place, as the Acetate, Citrate, and Nitrate of Potash, and the Iodide of Potassium and Ammonium. But the vegetable alteratives are also useful in some cases, as the Scrofularia, Phytolacca, Corydalis, etc.

As a local application I like the Quinine inunction when the parts are tense and contracted, and the Uvedalia ointment when they are full and feeble.

The Propylamin has been highly recommended in rheumatism, and urged as a specific in all forms. I have tried it to a considerable extent, and have found it of advantage in some cases of the sub-acute and chronic forms of the disease, in which it may be used. The local applications made use of are various, all the measures heretofore recommended being used in these cases. My favorite application is the irritating plaster, directly to the diseased part, though not carried so far as to produce suppuration. In some cases it seems to produce a marked influence, even before redness has been

induced. A poultice of a decoction of one part of Podophyllum to three parts of Cornus, thickened with Wheat-bran, or a poultice made with the Phytolacca, is sometimes useful, as is also the application of a plaster of Belladonna. When the joints are seriously diseased during the progress of rheumatism, they may be treated as hereafter named. Among the external applications to increase the tone of the skin, the cold water bath has answered my purpose better than anything else; occasionally cases will be met with, in which great benefit will be derived from the warm bath, or the vapor bath, and in others by the use of the cold douche. Electricity has been advantageously employed for the relief of pain, the current being passed from the part to the spine, and for the purpose of stimulating absorption, passed in the opposite direction.

PERIOSTITIS.

Inflammation of the periosteum is sometimes rheumatic in its origin, at others it arises from constitutional syphilis, and in some cases it is the result of cold or of injury. In either case it is a true inflammation, resulting in change of structure, thickening, deposit beneath it, and finally suppuration, most usually next the bone. Being the nutritious membrane of the bone we find that it occasions disease of that, if its change of structure is sufficient to impair the circulation, or if it is separated by the formation of pus; it is almost always accompanied by swelling of the superimposed parts, which frequently seem to partake of the inflammation.

Symptoms.—The first evidence of the disease is usually a deep seated soreness and aching of the part, which is increased by motion. If extensive and acute, chills and rigors now make their appearance, followed by brisk febrile action, the pulse being especially hard, and the patient irritable and restless. The fever is usually of a remittent form, the exacerbations coming on in the afternoon. In some cases the fever goes down in three or four days, nothing being left to mark it but the slightly accelerated and hard pulse, and deranged excretions. In others it assumes an ataxic or irritative character, attended by many of the symptoms heretofore named as typhoid, and running a course of from three to six weeks.

In cases where but a small portion of the periosteum is affected, the inflammation being mild, but little febrile action is noticed.

As before named, a sense of soreness and aching usually precedes the chill; when the fever comes up, the inflammation is fully developed; there is a deep seated, tense, contusive pain, sometimes seeming as if the part would be torn to pieces, by some internal pressure. If the bone is superficial, the parts above are involved in the inflammation, become swollen, red and glistening, hot and painful. If deep seated, as when the shaft of the femur, or the fibula, or posterior surface of the tibia are involved, there may be but little external evidence of the disease. Usually, there is a glistening appearance of the skin, with increased heat.

The inflammation runs a variable course, sometimes rapid, sometimes slow. The symptoms continuing, and usually increasing in intensity, the patient complains of deep seated, throbbing pain, much more severe than that which preceded it, rigors occur, and the patient is much prostrated, indicating the formation of pus. After long and protracted suffering, the pus makes its way through the structures to the surface, and discharging, the pain is much modified. One or two, or four, six or eight weeks, may be consumed in this process, sometimes resulting in most serious structural lesion of the bone.

DIAGNOSIS.—We diagnose periostitis, by the deep seated aching or tearing pain, increased when pressure is made directly upon the bone. The surface has usually a smooth, glistening appearance, that is unnatural in other cases. Further than this, the diagnosis must be made by exclusion. The deep throbbing pain, extremely severe, with rigors or chilly sensations, determines the formation of pus.

PROGNOSIS.—The prognosis is favorable, except in cases where it is the result of secondary syphilis, and the general health is much broken.

POST-MORTEM EXAMINATION.—The periosteum is found thickened, and reddened in the early stage of the disease, and there is more or less effusion into the superimposed tissue, and sometimes beneath the membrane, the bone sharing in the

inflammation to some extent. In a further advanced stage we find the membrane softened, with purulent formation on its free surface, and involving the adjacent tissue; or, it is separated from the bone by purulent formation, and in some cases there is commencing caries, or, in others, death of a considerable portion of the bone. Advancing further, we simply find evidence of disease of the bone, which becomes the permanent disease.

TREATMENT.—If the case is seen early, the inflammation may be arrested before there is change of structure, or the bone is endangered. The patient is put upon the use of the sedative indicated—Veratrum if the pulse is full, Aconite if small. The bath is employed as usual, and when the fever is somewhat under control means may be employed to establish secretion. If the reader will turn back to the general consideration of inflammation, the treatment may be read in detail. Special remedies are frequently indicated, and exert such marked control that it may be well to name some of them. They are added to the sedative solution in the usual proportion.

Macrotys is the remedy when the inflammation has a rheumatic character, the pulse being full and the waves distinctly marked; Bryonia when the pulse is hard, wiry, and the pain acute and lancinating; Rhus when the pulse is small, burning pain, and the peculiar pain in the forehead; Apocynum when there is œdema of the extremities, or puffiness of tissues over the affected part; Eupatorium Per. when there is full pulse, hot skin with perspiration; Belladonna if there is dullness and inclination to sleep; Gelseminum if there is irritability, restlessness, and difficulty in passing urine. In some cases the broad pallid tongue with a dirty coat will call for Sulphite of Soda; and in some others we will find use for Sulphurous Acid or Baptisia.

If the case is syphilitic, we will add Iodide of Potassium, if the tongue shows a bluish pallor and is full; but if contracted and red, we give small doses of Donovan's Solution.

As a local application in the early stage I prefer Tincture of Aconite or Veratrum, or both; in a later stage, a solution of Salicylic Acid and Borax.

If the disease goes on to suppuration, we may employ a

poultice of Cornus and wheat bran, or fomentation of a decoction of Poppy-heads, or Hops, or the Polygonum or Stramonium, will sometimes answer a good purpose. At other times these seem to increase the pain, and we have to resort to cold applications. Leeches applied to the part sometimes give marked relief, as do cups to the parts adjacent to that affected. In some cases the pain was so excessive that I found it advisable to make a free incision through the membrane, though in these the bone was superficial. When pus has formed, there is no necessity of waiting for it to point; in fact, in a majority of cases it would be bad practice to do so; an incision should be carried down to the part affected, when frequently, with the escape of a small portion of pus, the pain is greatly mitigated. If after this the inflammation continues, it will have to be treated as for disease of the bone.

OSTEITIS.

Inflammation of the bone occurs most frequently in early life, as at that time the osseous tissue is very vascular, whilst at a later period the vessels become smaller, and many of them disappear. It most frequently attacks the spongy tissue, though sometimes the more compact; in the first case resulting in ulceration, in the second frequently causing necrosis. It may result from injury, or from cold, and is most frequently met with in persons of a syphilitic, strumous, or rheumatic constitution. It may be acute or chronic.

SYMPTOMS.—The symptoms bear a very close resemblance to periostitis, which increasing for two or three or more days, becomes an intense boring or tearing pain, most exquisite and agonizing in its character. Very soon the superimposed structures are involved, becoming hard, swollen, and of a tense, shining appearance, with a slight reddish blush, and sometimes pitting on pressure. The pain is increased by a sudden movement or jar, or by the slightest pressure on the part. This pain continues without intermission, being greatly increased at night, and by sudden changes of temperature; the soft parts become more and more involved, and at last suppurate, the event being announced by throbbing pain, and the accession of rigors. The constitutional symptoms are

usually severe, the disease being ushered in by a chill or rigor, which is followed by high fever, and an arrest of the secretions.

The acute disease will usually run its course in from one to three weeks, giving rise to serious structural changes, as softening, caries and necrosis, unless resolution is effected by early treatment. When it terminates as above named, it is extremely tedious, and involves frequently the performance of important operations for the removal of the diseased structure, and in some cases the removal of the part.

In *chronic osteitis*, the disease comes on slowly, and is not attended by the same constitutional disturbance. The pain is deep seated and circumscribed, and of an aching or tearing character. It is usually worse at night and during sudden changes of temperature: if the inflammation is deep seated in the bone, as next the medullary canal, or the center of the cancellous structure of the extremities of long bones, there may be but little evidence of disease externally, except a very slight puffiness, and the peculiar shining appearance of the skin. In other cases, where the inflammation is superficial, the soft parts upon it become swollen, or at least participate in the disease to the extent of suppuration. As the disease progresses, more or less derangement of the general health obtains, the appetite becomes impaired, there is loss of flesh and strength, the bowels are irregular, the skin harsh and dry, and the patient has a peculiar cachectic appearance. In its later stages, there are occasionally marked hectic fever and night sweats.

DIAGNOSIS.—As before remarked, it is impossible to determine between osteitis and periostitis, but as the treatment is similar, there is no special necessity for making the distinction. Chronic osteitis may usually be known by the deep seated and tensive pain, enlargement of the bone, and peculiar tense glistening appearance of the skin.

PROGNOSIS.—Though rarely fatal, the disease does not usually terminate as favorably as we could desire. Going on to suppuration, we find more or less of the bone destroyed, and as it takes so long a period for the debris of devitalized bone to be removed, fistulous pipes are formed through the soft structures to the seat of the disease; through them pus with bony debris

is constantly discharged, keeping up a continuous irritation not only of the soft tissues, but of the bone itself. Escaping with difficulty, the material may, by its simple presence, give rise to an irritation that will keep up caries; or, from the change in the adjacent structure, ulceration of the bone may go on; or, parts of the bone may have their vitality destroyed, and separating from it, form *sequestra*, which will continue the irritation and discharge by their simple presence. These further changes properly fall in the province of surgery, and need not be described here.

TREATMENT.—The treatment of osteitis will not differ in any material respect from that of periostitis, being guided wholly by the special indications for remedies. It is of importance that the part should have rest, and that the processes of excretion and blood-making are re-established. With a "bad" blood we are pretty sure that the inflammation will go on to the destruction of tissue, as it may if the strength is greatly exhausted from want of food or proper digestion.

If the inflammation goes on to suppuration, an early discharge of the pus is usually important, for the presence and pressure of this will sometimes increase the destruction. With the opening of the abscess, the fever having subsided, I usually employ injections of the sesqui-carbonate of Potash to remove the diseased bone and promote healthy granulations.

The Frasera Carolinensis has been employed in both acute and chronic osteitis with most marked success, the tincture being used in doses of ten drops four times a day. Grindelia is another remedy that has proven useful in the same dose. Other than this, we are guided in the selection of remedies by the usual symptoms; the more carefully we examine our case, and select the remedy, the better will be the success. The tonics and restoratives are selected in the same way, no formula being adapted to all cases. Among the restoratives I may name the Compound Syrup of the Hypophosphites, and Cod Liver Oil; and of the tonics, the Phosphate of Hydrastia, with minute doses of Podophyllin.

Quinine inunction is sometimes of great importance, and even the part is benefitted by friction with it. In other cases, where there is an atonic fullness of tissue, or evidence of a low deposit, the local application of the Tincture of Grinde-

lia, ℥ij. to water Oj., is very good, as is the use of Salicylic Acid and Borax, as already recommended. Sometimes counter-irritation near the affected part, when it is small and superficial, answers a good purpose. If these means fail, an incision should be carried down to the diseased part, and if deep-seated within the bone, it may be carried to the seat of purulent deposit by the small trephine. The solutions may then be injected as before recommended.

STRUMOUS DISEASE OF THE BONES.

Tuberculous disease of the bones is not of very unfrequent occurrence, ranking about fourth in the scale of frequency of parts affected. The most common seat of the deposit is the cancellous or spongy portions of bone, being of most frequent occurrence in the vertebra, the short bones of the foot and hand, and the articular extremities of long bones. It occurs only in persons of a scrofulous or tubercular diathesis, marked evidence of feeble vitality being manifest before disease of the bones commences. The deposit is the result of irritation, sometimes from cold or disease of adjacent parts, at others from injury, and it may occur as circumscribed tubercle or as scrofulous infiltration.

Symptoms.—Strumous disease of bones is almost always chronic, and the symptoms vary according to the seat or extent of the deposit. The patient usually complains of a dull, deep seated pain or aching, increased by sudden movement, or anything that causes a strain on the part. It is sometimes but little felt in the daytime when the weather is fine, but is worse at night and when the weather is changeable. If the disease is located in the back, the patient will complain of the backache, and will relieve the part as much as possible by position. If of other parts, slight enlargement will be noticed, and the pain is circumscribed; there will also be, to some extent, that peculiar white glistening appearance of the skin which is so prominent a feature in the next stage. Sooner or later, the material will commence to break down, and determination of blood, and a low form of inflammation will be set up. Now the external tissues, in the case of the bones of the extremities, become swollen and hard, the pain increases and becomes tensive, tearing or pulsating. The bone seems to be much

enlarged, and the pain is increased by movement or direct pressure upon it. The part has a peculiar, blanched, smooth and glistening appearance that is peculiar to this disease and strumous disease of the joints. Finally, suppuration results, the pus working its way to the surface being discharged through one or more openings. It is not generally laudable pus, but a watery material, with more or less bony debris, and small flocculi of coagulable lymph or tubercular deposit. From this forward we have a case of caries, ulceration of the bone, or necrosis. If disease of the bodies of the vertebra has progressed thus far, it may result in the formation of abscess, as in the case of psoas abscess from disease of the upper lumbar or lower dorsal vertebra; or if, as is sometimes the case, the material is re-absorbed, curvature of the spine, from loss of substance of the bodies of the vertebra, takes place, with sometimes paralysis from pressure thus induced, or from disease of the spinal cord set up by disease of the vertebra.

DIAGNOSIS.—In nearly all cases of strumous disease of the bones, there will be evidence of this diathesis so plainly marked that it will not be easily misunderstood. Then the slow progress of the disease, evidently confined to the bone, and presenting none of the symptoms of malignant disease or of exostosis, and the blanched, glistening appearance of the surface, are usually sufficient.

PROGNOSIS.—In some cases, tubercles are deposited in bones, and in the course of time are partially absorbed, or so changed as to render them innocuous. Most generally they run the course laid down, the symptoms being more or less severe according to the part affected. In some cases it is hardly possible for the patient to live through the prolonged suffering and loss of rest, and the exhausting discharge; but in others they pass through it with little difficulty. It almost always results in more or less deformity, and very frequently demands operative interference.

POST-MORTEM EXAMINATION.—In cases of death from this disease, the bones affected are usually severely diseased. They will be found enlarged, softened, and more or less infiltrated, though the external shell may be somewhat compact. One or more fistulous openings, or *cloaca*, pass through this to an

internal cavity, which is ragged, and contains more or less bony and strumous debris. Sometimes a great part of the structure of the bone is removed, nothing but a simple shell being left.

Treatment.—In the treatment of this affection, our first endeavor is to so improve the general health as to stop the deposit of this material, or the progress of strumous osteitis. This is a work of difficulty, but is yet feasible in many cases. The case requires careful analysis, and if there are prominent indications for any remedy or remedies, these will be important in the arrest of the disease. Aconite, Rhus, Bryonia, Macrotys, Frasera, Veratrum, and Arsenic, may especially be named. In many cases the anti-rheumatics most certainly exert a marked influence, if for nothing else than relieving irritation and giving rest. Many cases will show the characteristic tongue (pallid and dirty) indicating Sulphite of Soda, and its administration will improve the appetite and digestion, and markedly increase waste and excretion.

The general Quinine inunction will sometimes prove much better than the ordinary bath, and even local friction will relieve the part. Usually in the early stage an application of—
℞ Tincture Aconite, Tinct. Veratrum, aa. ℥ss., Water ℥v., will be the best application. But if the part is much swollen and evidently enfeebled, I would strongly recommend the Uvedalia Ointment applied with heat. A nutritious diet, consisting largely of animal food, and fatty matters, should be allowed, and plenty of exercise in the open air enjoined, if it can be taken without inducing local inflammation. Usually the part will have to be kept so quiet, that if the patient is placed by the window where the sunlight can play freely, or carried out in the open air, it will be as much as can be done.

As regards the local treatment, we may employ any of the means heretofore named that may seem applicable to the case. The irritating plaster is sometimes of imminent service, as in cases of disease of the vertebra; frequently it is not necessary to carry it to suppuration, but in severe cases its greatest influence will not be obtained short of that. A very valuable application is formed of equal parts of powdered Podophyllum and Thuga Occidentalis, or Arbor-Vitæ, made into a poultice with warm Milk; it may be used at any point. The most essential part of the treatment is obtaining perfect rest of the

part affected, and this can only be done in many cases by the use of splints and other surgical appliances.

DISEASES OF THE JOINTS.

I propose to give, under this head, a short sketch of the prominent diseases of the articulations, with the medical treatment necessary, referring to the more extensive works on surgery for their full description. I deem this necessary, as the practitioner is constantly meeting with such cases, and frequently has not at command works that give the desired information. We have already seen that rheumatism may give rise to very serious affections of the articulations, especially the chronic form of the disease; and we will find in practice that it is sometimes difficult to make the diagnosis between joint disease from rheumatism and from other causes. We have to notice but one acute disease, *synovitis*, and will group all the others together under the heading of chronic disease of the joints.

ACUTE SYNOVITIS.

Acute inflammation of the synovial membrane of a joint is serious in proportion to its size; in the larger articulations as the knee, ankle, wrist and elbow, giving rise to very serious constitutional disturbance. It usually has its origin from an injury, especially from a penetrating wound of the joint; but is sometimes the result of cold, or of cold following a slight injury.

SYMPTOMS.—Usually the first evidence of the disease is a feeling of stiffness and soreness of the joint, with tearing pain when it is suddenly moved or twisted. In the course of one or two days a violent inflammation is lit up, generally ushered in by a marked chill or rigor, which is followed by febrile reaction. The fever at first is usually high, the pulse frequent and hard, the skin hot and dry, the tongue coated white, the appetite gone, bowels constipated, urine scanty and high-colored, pain in the head and back, and great irritability and restlessness. Occasionally the local inflammation is very acute, with comparatively little constitutional disturbance. Usually

the more acute constitutional symptoms subside in three or four days, the fever becoming remittent in character, or replaced by hectic fever in the latter stages.

With the commencement of the inflammation, the joint swells rapidly, and in the course of two or three days becomes distended to a greater extent than would be deemed possible. It is usually very red and hot, the heat and redness extending for some distance above and below the articulation. The pain is intense during its entire progress, tensive, throbbing, tearing and lancinating, and at times so severe that the patient cries out with agony. The part is usually exquisitely tender, the slightest pressure or motion greatly aggravating the suffering. If permitted, we readily determine that the swelling is consequent upon the distension of the synovial membrane.

The disease continuing, effusion of plastic lymph occurs within the synovial membrane, which sometimes becomes organized, forming adhesions, but more frequently breaks down, forming flocculi in the synovia, or is changed into pus; or the synovial membrane becomes thickened and rough, secreting a viscid synovia, or semi-purulent material. In some cases the disease extends to the articular cartilages, which become softened and eroded, so as to expose the bone, giving rise to osteitis, and all the results that follow it. These diseased conditions most usually follow injuries of the joints, but may sometimes result from the inflammation produced by cold. The symptoms are such as might be expected from the nature of the lesion. If the joint is large, as of the knee, ankle, elbow or wrist, there is great prostration with hectic fever, night sweats, and their attendant symptoms. It will sometimes run its course rapidly, two, three or four weeks being sufficient to cause the grave changes named; in other cases it will require as many months.

DIAGNOSIS.—In superficial joints the character of the disease may be determined by its sudden accession and the marked heat, redness and swelling, and severe tensive and twisting pain. In the hip and shoulder joints, it is not so easy to determine distension of the synovial membrane, yet careful examination in the one case, by the side of the trochanter major and below Poupart's ligament, and the other in the inside, and each side of the deltoid, will likely determine syno-

vial fluctuation. The more advanced stages may be determined to a great extent by the symptoms already named.

PROGNOSIS.—In almost all cases, except those resulting from injury, resolution may be effected without injury to the structures. When caused by injury, this result is more difficult to attain, but may be accomplished in a majority of cases.

POST-MORTEM EXAMINATION.—In the early stages of the disease the synovial membrane shows a slight reddish-blush, and the vessels passing to it are seen to be enlarged; there is a greatly increased secretion of synovia, sometimes nearly natural, but more frequently yellowish and viscid. Progressing beyond this, almost every stage of destruction is noticed, the synovial membrane being thickened, or in some cases softened; more or less flocculent material in the synovia, which is turbid and opaque, or in some cases purulent; the cartilages are eroded or destroyed, and the bone diseased to a greater or less extent.

TREATMENT.—A careful examination should be made to determine the indications for special remedies, for as we have seen, these are quite as important in arresting inflammatory action as other disease. Select the proper sedative as a basis for the treatment—Veratrum when the pulse is large, Aconite when it is small—giving them in the usual doses. To these add Bryonia, Macrotys, Rhus, Gelseminum, Belladonna, Sticta, Eupatorium, or other remedy indicated by the pain and other symptoms. Whilst the disease may not be rheumatic, these remedies exert a marked influence, but they must not be taken at random. In quite a number of cases the tongue will be found pallid, or pallid and dirty, calling for a salt of Soda, or for the Sulphite of Soda. In some cases the fullness of tissue and venous fullness will ask for Podophyllin; but in a larger number the fullness takes the form of œdema, and the remedy is Apocynum.

In the older method of treatment, when special remedies were not used, the treatment commenced with the sedatives; was followed up by means to increase secretion from the skin, by the bowels, and by the alkaline diuretics; and if there was a shade of periodicity, by the free administration of Qui-

nine. This plan may still be adopted in some cases, though I think if we study our cases well, the direct means will give the greater success. In the olden time I used Opium to relieve pain, but now I avoid it if possible.

Perfect rest must be obtained, and if this can not be accomplished otherwise, a splint should be applied. It seems to me to be the greatest folly to permit a person to use an injured joint, even to the slightest extent, until after all danger of inflammation has passed.

Warm fomentations of bitter herbs or narcotics are most generally recommended as a local application, and though sometimes giving relief, I must confess that I do not like them. Next in frequency, poultices of various kinds are used, but without any very marked benefit The narcotics and sedatives, Belladonna, Stramonium, Opium, Aconite and Veratrum, are useful remedies in many cases, quieting the local irritation, and assisting in the arrest of the inflammation. The stimulating and sedative liniments named under the head of subacute rheumatism, may also be used when the case progresses slowly. My plan of treatment now, is to have the joint thoroughly cupped, or if this is not convenient, leeched, at a short distance from the seat of inflammation; it should then be strapped with Belladonna plaster or common Adhesive plaster, and placed upon a splint that will not permit the slightest amount of motion. This does not seem to the patient or young practitioner like doing enough, and yet it will prove far more satisfactory than the other measures referred to. Time is required to effect resolution, and it must not be expected that this or any other means will relieve the suffering in a few hours. If the disease goes on to produce the serious structural changes named, it will have to be treated as the succeeding affections.

In some cases it will be found that the disease is not in the slightest degree mitigated by this or any other treatment; the swelling increases until it seems impossible for the joint to become larger, and the pain becomes so excruciating as to be unendurable, and the patient will pray for any relief, even death itself. We can see from all the symptoms that rapid destruction of the joint is going on, and that if relief is not soon afforded, the destruction will be so great as to be irre-

parable, even should the patient survive. What shall we do in these cases? Authorities seem to differ, but I should incise the joint, and keep it open, until the inflammation was subdued. It is good treatment in disease of the smaller articulations, and I have been forced to adopt it in two cases of disease of the knee joint, very much against my will, but with the best of success in both instances. Dr. Cooper, of San Francisco, clearly proved that opening into joints was attended with but little danger, yet the old prejudices prevent the general adoption of his practice.

CHRONIC DISEASE OF JOINTS.

Chronic articular disease is always inflammatory at some stage, and very frequently so at the commencement. Each of the tissues entering into its formation may be affected, but it usually commences in the synovial membrane, or in the articular extremities of the bones. The causes are various; thus, it may arise from an acute inflammation, from rheumatism, from injury, from the common causes of inflammation elsewhere, or from strumous deposit in some of the tissues entering into the formation of the articulation, or adjacent to it. Essentially chronic in its character, it sometimes comes on insidiously, and always runs its course slowly.

SYMPTOMS.—The general symptoms of chronic articular disease are: a gradual enlargement of the joint, with more or less pain, usually of a dull, aching character, but becoming more intense as the disease progresses; a feebleness of the muscles moving the part, and of the joint itself; displacement of the bones to a greater or less extent, and deformity in consequence. In many cases the joint presents a blanched, glistening appearance, though it may be hot, and very painful; hence, the common term, *white swelling*, applied to this class of diseases. The constitutional symptoms are always very marked. As the disease advances we find the patient becoming cachectic; the appetite is poor; bowels irregular; the skin and kidneys fail to perform their functions properly, and there is marked derangement of innervation. Sometimes the effect of the local disease is so severe in the case of the larger articulations, that the patient is soon confined to his bed, from which frequently

he does not get up for weeks and months. During this time very many changes take place in the disease; at times severe fever, so that it would seem impossible for the patient to live; again, marked irritation of the nervous system, the patient being extremely irritable and sensitive, and can not be moved without the greatest suffering, and resting badly at night; occasionally almost complete loss of appetite, or very feeble digestive power, being troubled with flatulence, acidity, etc.; or hectic fever of a most persistent character, with night sweats, makes its appearance, with sometimes tendency to colliquative diarrhœa. Altogether, in cases of disease of the larger articulations, there is a succession of the most adverse symptoms, one appearing when another is removed, that renders its treatment anything but pleasant.

Hydrarthrosis is the most simple of these articular diseases. It occurs most frequently in the young, and is very rare after thirty. It is usually preceded by an injury, an acute inflammation, or rheumatism, from which the part seemingly recovered at the time. Sometime afterwards it is noticed that the joint is becoming enlarged, is weak, though still used, and is sometimes the seat of a dull, obscure pain. The distension is sometimes not very great, but at others the articulation is rendered a shapeless mass from the very great accumulation of synovia, which distends the joint most in the direction of the least resistance. As it continues, the areolar tissues become thickened at the parts where there is the greatest pressure. The only change observed after death is the thickening of the synovial membrane, with sometimes softening, and marked enlargement of the fringes of the alar ligaments, sometimes to to such an extent that they seem to be fleshy masses.

Strumous Synovitis is diagnosed, according to Mr. Barwell, by the following symptoms: "The swelling is either before pain, or is discovered with the pain. Pain being a later symptom as regards visible swelling; yet when it comes on it is constant. The bones forming the articulation are blended by the swelling into one rounded, shapeless mass, which overlies both parts of the joint equally, and conceals greatly or altogether the line of junction between the two bones. There is no preference of place; the swelling is equable over the whole joint. The integuments are not at all, or scarcely increased in temperature."

In *Strumous Articular Osteitis*, "the first symptom is heavy dull pain with limping or other imperfection in the use of the limb; this comes on before any swelling is perceptible. The pain is generally increased in bed, and is subject to variations; sometimes quite disappearing for a time, and again returning. The swelling at first is confined to one portion of the joint; for instance, at the knee, the upper where the femur, the lower where the tibia is affected. Afterward, though the whole joint be enlarged, the tumefaction is more marked, harder and larger over the bone primarily affected, and is nearly always on one side of the joint. The division between the bones remains evident to the touch. In all but the deepest placed bones, the integuments over them are sensibly hotter."

The same author lays down the following well-marked symptoms of *caries* and *necrosis*: "In the first, during the formation of pus, the general and local symptoms increase in intensity, and continue to increase even after an external opening has been made. The sinuses are crowned with florid granulations which bleed extremely easy. They are surrounded by thin, blue, contracted skin. The pus is plentiful, thin and irritating. A probe finds the diseased bone surface with difficulty, on account of the windings of the sinus. The surface is rough, slightly yielding, and brittle, though parts give way; it gives an idea of softness. In *necrosis*, where pus forms in the soft parts, and more particularly when it has been let out, the symptoms diminish. The sinuses are crowned by florid, but not brilliant granulations, which do not bleed with extreme ease. They are surrounded by normal or slightly altered skin. The pus is not large in quantity, and is in general nearly laudable. A probe passed along a sinus to necrotic bone finds the passage tolerably straight or simple. The bone is hard, brittle, sometimes moveable. Often one may feel the probe pass through a sinuous opening (cloaca) in bone before it comes to the dead portion."

DIAGNOSIS.—The diagnosis of chronic articular disease is usually easy where the joint is superficial; but difficult where deep seated, as in case of the hip and shoulder joints. The main features of the affection and the symptoms distinguishing different lesions have already been noticed.

PROGNOSIS.—When the synovial membrane is alone affected

the prognosis is much more favorable than when the disease commences in the bone. If but little change has taken place in the structures, we may hope to arrest the disease and save the joint. In other cases we may sometimes get a useful limb, but frequently with deformity and stiffness, or anchylosis of the joint. These cases are usually tedious, and call for very great care, and the judicious application of remedies to meet the symptoms as they arise.

POST-MORTEM EXAMINATION.—Dissection reveals various structural lesions, corresponding to the symptoms during life. If the synovial membrane was alone affected, it is usually thickened, more or less rough, and in some cases changed to a pus-secreting structure; the synovia increased in quantity, may be nearly normal, or viscid, or containing flocculi and shreds of lymph, or semi-purulent, or in some cases thick and grumous. Passing beyond this, we find the cartilages eroded or entirely destroyed, and more or less extensive caries of the bone. In articular osteitis, the bone is enlarged and carious or necrosed, with fistulous pipes passing to the surface; in some cases a considerable portion of it is broken down, the site being filled with bony debris and ill-looking pus.

TREATMENT.—When called to treat a case of chronic articular disease, our first object is to so arrange the part as to obtain most perfect rest. If of the lower extremities it will be necessary to confine the patient to the bed for a period of weeks, or in some cases from four to six months. In addition to this a splint should be carefully adapted to the part, so as to render it entirely immovable, and at the same time make sufficient extension to prevent pressure of the bones from contraction of the muscles. Though joint disease may be cured without these measures, yet it is tedious, and the suffering is frequently intense; and in many cases, from want of attention to this point, the joint is lost, or the disease terminates fatally.

There are cases in which the patient requires but very little or no medicine; rest to the part, cleanliness, and proper food being all that is necessary. In others the secretions are deficient, and the old tissues are not properly removed. It may be in the skin, which is sallow, full, doughy, and evidently in an atonic condition. Following a thorough washing with soap and water, we use the Quinine inunction, or it may be a

bath of sea salt, or a tonic and astringent bath, as indicated. Or it may be in the kidneys, the secretion of urine being deficient, and we stimulate a better secretion, break down old tissues, and wash them out with Acetate or Citrate of Potash. Or it may be the bowels that are specially at fault, and we stimulate them to greater activity by small doses of Podophyllin and Hydrastia, or possibly with Sulphate of Soda and Sulphur.

In other cases it is evidently not waste and excretion that are at fault, but digestion, blood-making and nutrition. Here we find a place for the bitter tonics, the restoratives—Hypophosphites, Iron, Sulphur, Silica, Cuprum, Arsenic, Cod Oil, etc. Then we have cases in which the treatment named for acute synovitis is indicated; and cases which are benefitted by the continued administration of the sedatives, and by the use of anti-rheumatics. It is fortunate that these remedies relieve pain in a marked manner, and give rest to the part. If we find the tensive pain, Macrotys relieves; if the continued pain, occasionally sharp and lancinating, we give Bryonia; if the pain is burning, the Rhus; if the parts show œdema, the Apocynum. These remedies exert a most marked influence, in some cases, in arresting inflammatory action. The alteratives will sometimes exert a good influence, and I prefer to use them in infusion, rather than in syrup. The Alnus, Rumex, Phytolacca, Scrophularia and Iris, may especially be named. Phytolacca is indicated when the lymphatic glands are generally enlarged, and the Iris if the thyroid glands are enlarged. Among the more recent remedies, the Uvedalia may be named as a most excellent application when there is much adventitious deposit about the joints. If the pain is very severe, and can not be controlled by local applications, we may use Opium or its preparations, but would prefer to get along without them. If the pain is severe in the afternoon, especially if attended with hectic fever, we may relieve it with Quinine and a small portion of Opium. If there is a loaded tongue or foul stomach, I would use an emetic, getting its thorough action, and following with equal parts of Oxide of Zinc and Hydrastin, two grains four times a day, in pill or powder, and a solution of Acetate of Potash. I have seen a severe hectic fever and night sweats arrested in this way when all other means had failed, and the patient regain

his appetite and commence to recover, the first evidence of amendment dating from the emetic.

As regards local applications, it is sometimes desirable to use none at all, keeping the part perfectly quiet and undisturbed. In other cases the application of a plaster of Mayer's Ointment, made strictly according to the Dispensatory, will be found highly useful; or take equal parts of Rumex and Phytolacca, simmer them in Lard, express, and to each ounce, add one drachm of Venice Turpentine, and half a drachm of pulverized Camphor. These applications are the best I have ever used in cases where the disease was progressing slowly, and the part was not very painful. If painful, I use the Belladonna plaster, or other narcotic applications. When the part is tender and painful, as is frequently the case when we are first called, we may poultice it with a decoction of Cornus or Stramonium, thickened with Wheat-bran, and when the irritation has subsided, resort to the other applications named.

In hydrarthrosis or strumous synovitis, next to perfect rest we obtain the greatest advantage from straps. I am accustomed to use any medicated plaster that I think indicated for this purpose, as almost all of them are sufficiently adhesive for our use. I have frequently employed the irritating plaster spreading it on strips of muslin an inch wide, warming and applying so as to make a continuous and even compression. The common strengthening plaster answers well; and Mayer's Ointment, made according to the formula, with Gum Turpentine, is excellent. If these are not obtainable, use the common adhesive straps, applying as firmly as the patient can bear without increasing the pain.

In hydrarthrosis, it is proposed by subcutaneous incision to let the fluid escape into the areolar tissue, from which it will be absorbed, which is doubtless good practice. In other cases, the majority have decided that it is not proper to open the joints in any case, but the minority have shown in numerous instances that it is not only feasible and unattended with danger, but is often the only mode of procedure that will save the structure of the joint. This is entirely a surgical question; and for its solution, as well as the further surgical treatment, the reader is referred to the surgical works of the day. Barwell, Dr. Bauer, and Dr. Lewis Sayre, being the authorities that I should prefer to follow.

CHAPTER IX.

DISEASES OF THE NERVOUS SYSTEM.

In addition to the important part occupied in all diseases by derangements of innervation, we find that the nervous system is subject to many diseases, some of which are among the most severe that the system is liable to, and others are especially intractable to medicine. We have to recognize three distinct sources of nervous supply: the brain, the spinal cord, and sympathetic ganglia, each of which has a special purpose to subserve, and is more or less independent of the other. The brain is the organ of the mind, and furnishes the force by which a very large portion of the body is brought under the influence of the will. We may consider it as entirely the organ of volition, as in many of the lower species it does not exist at all, and even in some of the vertebrata is rudimental, and in none does it correspond with the need of innervation. The expansion of the cerebrum is especially the organ of thought, and rather detracts from than adds to the vitality of the person. The basilar portions of the brain may be considered as expansive to some extent of the spinal cord, and are eminently vital parts; the tenacity of life and power of living depending to a very considerable extent upon its development and perfect condition. While so serious a lesion as the removal of a considerable portion of the front-lobes of the brain may be recovered from, the slightest injury of the sensory ganglia or medulla oblongata will cause death.

Within the spinal cord we find gray nervous matter, giving origin to nerve fibers, though surrounded by the white fibers of communication of the brain. This is the center of the reflex or excito-motory nervous force, one that plays a very important part in the living body. It carries on certain functions when the will is in abeyance, and others that are left but par-

tially under the influence of the will. Thus the respiratory function is carried on by this system of nerves, as is also deglutition, and all of the involuntary movements. It is supposed that nerves from this source pass to every part of the system, and exercise a very considerable controlling influence. We will find hereafter that they may take entire command of the body, the brain no longer having any or but slight control.

The sympathetic nervous system seems to preside over the functions of vegetative life, and though both ganglia and nerve fibers are very minute, they govern the most important of all functions in the body, those of digestion, assimilation, nutrition, secretion, and the circulation of the blood. Though so minute in structure, yet it is probable that there is not a space the size of a pin's head in the entire body that has not its sympathetic fibril. Wherever a blood vessel goes, there goes a sympathetic nerve, to watch over the vital fluid, and see that it is properly applied.

These three parts are very intimately connected, the sympathetic ganglia with the spinal cord immediately posterior to them, and the spinal cord directly with the brain through fibers of communication. This connection is not marked during health, and is only developed to any considerable extent during disease. These associations have already been noticed, and will hereafter be seen to play a very important part in some affections.

PHRENITIS.

The brain and its membranes occupying the cavity of the cranium, are subject to inflammation like all other structures. The disease may attack and be confined to the membranes of the brain, *cerebral meningitis*, or it may affect the substance of the brain itself, cerebritis; but very generally affects both to some extent. As it is impossible to decide during life whether the membranes or the substance of the brain is the seat of the disease, there is little use in trying to draw a distinction between the two. Phrenitis may be caused by cold, and other causes tending to produce irritation of the brain, the state of the blood, and by injuries. It is almost always acute; in fact, I doubt if we are able to recognize a chronic inflammation of

this organ, unless it may be of the meninges, producing chronic hydrocephalus.

SYMPTOMS.—The invasion of the disease is indicated by a sense of fullness and pain in the head, the integuments being suffused, and sometimes a marked sense of heat. Frequently the patient complains of dullness, with confusion of ideas and forgetfulness, and unquiet sleep. Extreme irritability and fretfulness, with indisposition to sleep, and frequent startings during rest, the cry being sharp and quick, as if terrified, are the precursory symptoms in children. The disease is usually ushered in with a marked rigor or chill, continuing for an hour or two, or sometimes for nearly a day. Following this, there is in most cases high febrile reaction, the skin is hot and flushed, the pulse frequent and hard, tongue coated white, bowels constipated, and urine scanty and high colored. The head is turgid and hot, the eyes more prominent and suffused, the pupils contracted and fixed, and a deep seated, heavy, pulsating and tensive pain in the head.

As the disease progresses, the patient becomes more irritable and restless, the pain in the head increases, there is intolerance of light, ringing in the ears, and intolerance of sound, sleeplessness and delirium. Up to the third or fourth day, the fever is usually continuous, though sometimes there is a slight remission in the forenoon, and the head symptoms increase or continue without abatement. A marked change is now observed, the acute sensibility gives way to torpor, and the delirium becomes low and muttering, or is replaced by coma. The pulse becomes fuller, softer or slow, or in some cases very hard and frequent. The head and trunk is still hot, the face turgid and of a deeper color, or in some cases blanched and contracted, the pupils dilated, the extremities cool, respiration difficult and sometimes stertorous, and more or less involuntary movement and starting of the tendons. The coma gradually becomes deeper, and the insensibility more marked; all the functions are feebly performed, the patient lies on his back, slips down to the foot of the bed, grasps at imaginary objects, and thus slowly sinks. According to Copland; "In some cases, particularly those in which the cerebral substance is early and generally inflamed and turgid, instead of phrenitic delirium, an apoplectic sopor, often preceded by convulsions,

quickly supervenes; with a slow pulse, stertorous, slow or labored breathing, turgid or bloated countenance, startings of the tendons, involuntary evacuations, torpor of the senses, and flaccidity of the limbs." Here the first stage is very short, or not noticed, and the disease passes rapidly to a fatal termination.

In children we frequently find inflammation of the brain making its appearance during the progress of other diseases. The head becomes hot, the face turgid, the pupils contracted, with great restlessness and constant movement of the head. Though not very marked on account of age, the child is evidently delirious, and the frequent movement of the head, and putting the hands up to it, shows that it suffers pain. In other cases the acute stage has passed without notice, the face is blanched and contracted, or white and puffy, the pulse is small and very frequent, the extremities cool, bowels loose, the operations being unnatural and offensive; there is continued movement of the head and restlessness, or a deep stupor or coma. Sometimes the symptoms will continue for three or four days, but at other times the disease will terminate fatally within forty-eight hours.

DIAGNOSIS.—It is not difficult in the most of cases to determine the presence of phrenitis. The heat and turgidity of the face and scalp, the deep seated and tensive pain, contracted pupils, and the great irritability and restlessness, with the high grade of fever, are sufficient for the diagnosis. In those other cases in which coma, difficult respiration, full, but oppressed pulse, coldness of the extremities, dilated pupils, etc., are the attendant symptoms, the diagnosis will be very difficult, and if we can not have the previous history of the case, almost impossible.

PROGNOSIS.—In the first stage of the disease, the prognosis is usually favorable, if prompt measures are adopted for the arrest of the inflammation. In the second stage the lesions are so great that we will have to be guarded in our prognosis, though a considerable number will recover.

POST-MORTEM EXAMINATION.—The membranes of the brain will be found to have been involved most frequently. The dura-mater may be injected, as may also the arachnoid in some

places; there is sometimes increased quantity of fluid, but little changed or viscid, or containing flocculi of coagulable lymph, in rare cases adhesions having formed between the free surfaces. The vessels of the pia-mater may be distended, and on making an incision into the brain, if involved, it is found to present a more uniform red color than natural, and the puncta vasculosa more numerous and larger.

TREATMENT.—Whilst in the adult we may have inflammation of the brain as the original disease, in children it almost always comes up as a complication of some other disease. It is preceded in both cases by evidences of determination of blood to the brain, and the symptoms indicating this condition are so pronounced that no one should mistake them:—"Flushed face, bright eyes, contracted pupils, increased heat of the head, with restlessness and inability to sleep." If noticed early, and properly treated, there is usually no difficulty in arresting its progress. The remedy is Gelseminum, associated with the proper sedative—Veratrum if the pulse is large, Aconite if it is small. The dose of Tincture of Gelseminum will vary according to the condition of the patient, sometimes the small dose acting promptly; at others the full dose will be required.

We take it for granted that the treatment indicated by the fever, and the general treatment for an inflammation, will be followed, as it is possible that any of the remedies we have become acquainted with may be required in one of these cases. Some of these means may be recalled.

The fever and inflammation may be of that simple form that the proper sedative, with Gelseminum and the bath, will be all that is required. But we will occasionally find a case in which an evident irritation of the bowels increases the cerebral lesion. Here an enema of Compound Powder of Jalap is an aid; sometimes a mild cathartic may be given by mouth, but I should rather avoid it. Then we have a case in which the tongue is loaded at the base, the lower part of the face is expressionless, the pulse is oppressed, and though the patient is very restless, the mind is dull. In this case I should still use the emetic, the Acetous Emetic Tincture being preferred. Then we have the case of irritable stomach, in which medi-

cine, drink and food are not tolerated, and we find it important to use means to quiet this irritation.

In another case, in the early stage of the disease, we will find the tongue broad, pallid, and very dirty, and will obtain marked benefit from the use of Sulphite of Soda in the usual doses. In a still rarer case we find venous fullness, general fullness of tissue, and again a broad expressionless tongue. This patient should have Podophyllin. In still another case, in the early stage, we find the pulse small with sharp stroke, marked contraction of tissues about the eyes, sudden starting from sleep, sudden shrill cry during sleep—very marked symptoms calling for Rhus. In a more advanced stage of the disease we also find the remedy an important one, the patient being extremely restless, the eyes bright or glassy, and a remarkable contraction of the tissues about the base of the brain. In the adult I am satisfied that in a considerable number of cases the inflammation is to a certain extent rheumatic; at least the group of remedies we employ in rheumatism give relief here. Bryonia may be especially named when the pulse is full and vibratile, the right cheek flushed, and the patient complains of pain in the right side of the head.

In malarial regions, the disease will sometimes show marked periodicity the first two or three days, and if, by the use of the means named, we can get a complete subsidence of the symptoms, we may use anti-periodic doses of Quinine. In no other case is Quinine permissible, except it be, in some rare case, associated with Diaphoretic Powder to give sleep.

Stimulants and heat to the extremities seem sometimes of advantage, and occasionally counter-irritation is of use. Cold applications to the head should be avoided, and in place of them have the face and head sponged with warm water, and if need be, increase evaporation by fanning.

In the second stage of the disease we proceed with great care. If with coma the eyes are dull, give small doses of Belladonna or Ergot. If there are convulsive movements, Bromide of Ammonium is suggested. If the eyelids show œdema, or the feet swell, give Apocynum.

Typhoid symptoms frequently develop early, and the proper antiseptic becomes an important remedy. It may be Sulphite

of Soda, Sulphurous Acid, Muriatic Acid, Baptisia, or Chlorate of Potash, selected as heretofore named.

As the more acute symptoms subside, we may sometimes give rest to the nervous system by the use of Cactus or Pulsatilla, and once in a while Hyoscyamus will produce sleep. Small portions of Ammonia and Brandy may be given when the patient shows exhaustion; always commence with a small quantity, and, if the influence is favorable, increase it.

Convalescence should be managed with great care, all causes of excitement being avoided. Food should be carefully selected, such tonics and restoratives being employed as will give good digestion and blood-making. Secretion should be free, and it is well to keep the patient in view until we are satisfied that all these functions are well established.

ACUTE HYDROCEPHALUS.

(See Diseases of Children, pp. 361–365.)

CHRONIC HYDROCEPHALUS.

(See Diseases of Children, pp. 365–368.)

SPINAL MENINGITIS.

Inflammation of the meninges of the spinal column is not an uncommon disease, though sometimes, from the obscurity of its symptoms, it may be mistaken for other affections. It occurs in two forms: as a distinct sporadic inflammation, and as an epidemic or endemic fever, which owes its origin to the spinal cord. It is in the last named cases that mistakes in diagnosis are most usually made. The causes of this affection are those which give rise to other inflammations, as cold, sudden changes of temperature, injuries, and especially a sudden chilling of the surface after active exertion. It occurs most frequently in the young and vigorous, and is very rare after middle life.

SYMPTOMS.—Spinal meningitis usually commences with a well-marked chill, lasting for several hours, though sometimes with a severe rigor of considerable duration. I have seen

cases in which the chill was of twenty-four hours duration, the latter part of it being alternated with flushes of heat. Following this, there is marked febrile reaction, with hot, dry skin, hard and frequent pulse, tongue coated white, the edges and tip being red, constipation of the bowels, and scanty and high-colored urine. The patient complains greatly of pain in the back, which is so increased on movement, that he dislikes to change his position for any purpose; though in some cases, when not so severe, they are constantly shifting their position to give them ease. By the second or third day the fever usually becomes high, the pulse running some thirty or forty beats higher than in health, the skin being very dry and constricted, and the irritability and restlessness marked. These symptoms may be so prominent as to completely overshadow the symptoms of spinal inflammation, the patient not even complaining of the pain, unless his attention is directly called to it. It will be noticed, however, that the slightest movement or changing the position of the body gives rise to pain, and when the attention is thus drawn to it, the soreness of the spine will be continually noticed. Deep pressure usually elicits tenderness, and sometimes the sensibility is so exquisite that the patient can not bear to be touched.

As the disease progresses, the fever assumes an irritative or typhoid type. The tongue soon becomes brown, and sordes appear on the teeth. Typhomania occurs about the sixth or seventh day, and is frequently attended with looseness of the bowels. Sometimes there is marked irritation of the brain and delirium, at others a stupor which soon passes into deep coma. As the local disease progresses, it is found that the lower extremities are subject to involuntary movement, and that the patient has but partial command over them; and that the bladder and rectum are evacuated without the knowledge of the patient, or there is retention of urine without the power of discharging it. At last, in severe cases, paralysis of the parts below the seat of inflammation is complete. The fever is usually continued, though sometimes remittent, and is invariably ataxic, presenting well-marked typhoid symptoms, with the exception of diarrhœa, by the tenth to the twelfth day. It is usually protracted, lasting from two to eight or ten weeks.

DIAGNOSIS.—We diagnose inflammation of the spinal cord by the marked tenderness of the spine and inability to move, the constant pain in the back with the severe attendant fever. It is almost impossible to overlook these local symptoms, and yet in many cases they have been disregarded, to the great detriment of the patient.

PROGNOSIS.—The prognosis is usually favorable, if treatment is commenced in time, but is unfavorable after it has made progress for several days, in many cases terminating fatally, or in paralysis.

POST-MORTEM EXAMINATION.—In some cases there is marked evidence of determination to the membranes and enlargement of the vessels. Sometimes the membranes are thickened, with fragments of organized lymph on the free surface; there may also be flocculi in the fluid of the spinal cord, which is increased in quantity. In other cases the disease seems to be confined to the pia-mater and the substance of the cord, the former being slightly reddened, and sometimes thickened, and the latter softened, sometimes so much as to have lost all traces of organization.

TREATMENT.—The treatment of this case will not vary materially from that of inflammation of the brain. We give the proper sedative, and if there is the flushed face, bright eyes, contracted pupils, and increased heat of head, we associate with it Gelseminum in free doses. The proper bath may be used, the hot foot bath, or rather the feet may be wrapped in flannels wrung out of hot mustard water, and the hot bricks or irons placed to them. As soon as sedation is obtained to a slight extent, we may add to the treatment Tincture Asclepias and Ipecac., aa. ℥ss. to water ℥iv, a teaspoonful every two hours; and afterwards a solution of Acetate of Potash. An application of hot water to the affected part with a large sponge, or it may be the addition of Tinct Veratrum to the water, will serve our purpose at first. This might be regarded as the treatment of a case where there was no special indications for remedies.

The special remedies we will think of here are the Bryonia, Rhus, Macrotys, Apis, Phytolacca, Apocynum and Belladonna. The first two are frequently indicated; indeed the majority of cases can be successfully treated with the sedatives, Gelse-

minum, Ipecac., Rhus or Bryonia. The indications are clear and need not be mistaken: the sudden awaking from sleep, shrill cry, sharp stroke of pulse, call for Rhus; the steady, vibratile pulse, right cheek flushed, pain in head from forehead to occiput, Bryonia; burning and itching of surface, burning in passing urine, Apis; œdema, Apocynum; dullness and disposition to sleep, Belladonna. In those cases in which the tongue is dirty and pallid, Sulphite of Soda is an important remedy, and should not be neglected. In some cases the evidence of accumulations in the stomach is so marked that the treatment should be commenced with an emetic.

The bowels should be kept in a soluble condition by the use of some mild cathartic; I prefer Podophyllin thoroughly triturated with twenty times its weight of white Sugar, and with the addition of Cloves or Ginger to prevent its griping. If the patient seems much debilitated, as is frequently the case, Brandy or Rye Whiskey should be used to such an extent as to give the necessary stimulation, but not to overcome the effects of the sedatives.

Quinine has a very singular influence in some cases. If given in large doses, it produces marked sedation and exhaustion, and if continued this way for a few days, it may be followed by an irritative fever, with sharp, quick pulse and dry skin. For an adult, from one to three grains daily, is as much as will generally be of advantage; and a child of ten years may usually take from one to two grains. Opium may be given with advantage after secretion is established; in children I use the Compound Powder of Ipecac and Opium. The cups to the back may be repeated two or three times, or after their first use we may continue the stimulant applications. I am impressed with the opinion that we will find the wet bandage a most efficient application in many cases, and that it may advantageously take the place of stimulant applications. Further than this, the patient will have to be managed as in continued fever, the strength being supported with stimulants and nutritious food in the shape of milk and animal broths, and an equal circulation of the blood carefully maintained. If there is tendency to paralysis as the patient recovers, the treatment hereinafter named may be immediately adopted.

SPINAL IRRITATION.

Irritation of the spinal cord is met with quite frequently, and is usually associated with some chronic affection, and stands in relation to it either as cause or effect. In some of these cases there is undoubtedly a chronic inflammation, in others an irritation with determination of blood, and in another class there is feeble circulation and nutrition, the irritable action being the result. As these conditions are different, and demand different treatment, the importance of distinguishing them will be apparent.

The causes of spinal irritation are various. In some cases it results from injury, in others from cold, and in others from change in the circulating fluids. The most frequent cause is undoubtedly the extension of an irritation from some organ or part, along the nerves supplying it, back to the spinal cord. This most frequently occurs from parts supplied from the great sympathetic nerve, the irritation being transmitted backward to the ganglia, and thence by the fibers of communication to the spinal cord immediately back of them. Hence, the frequency with which we find spinal irritation in chronic visceral disease, especially if of long standing. As examples of this, we might enumerate irritation of the lower lumbar region and sacral portion from disease of the genito-urinary organs, the lower dorsal in disease of the kidneys, the upper dorsal in disease of the stomach, liver and spleen, and of the cervical in disease of the heart. This is so constant that we are almost certain, if we find irritation of these portions of the spinal cord, manifested by tenderness, or abnormal nervous manifestations in the sensory and motor nerves distributed from these parts, that the organs supplied from the sympathetic ganglia in front are the subject of either functional or structural disease. Indeed, it has been proposed to diagnose disease in this way, and sometimes it will direct our attention to disease of the viscera that otherwise would have been overlooked.

Not only will disease of the organs thus supplied give rise to an irritation of the spinal cord in the manner named, but the spinal irritation, when once started, may be sufficient to continue the disease, in spite of any treatment directed to it, and in some cases when the original disease is stopped by

remedies, it will reproduce it. Normal innervation is of primary importance to the healthy performance of function, hence the many functional lesions that follow irritation of one of the principal nervous centers. It is for these reasons that we are so anxious to determine the existence of spinal irritation, and to adopt measures for its relief.

SYMPTOMS.—The symptoms vary greatly, according to the part affected, its intensity, and to the progress it has made. Usually, but a portion of the spinal cord is involved, and in such case we have the manifestation of abnormal innervation in parts supplied with nerves from that source. Thus, in spinal irritation attending uterine disease, we will find, with the smallest amount of structural or functional disease, the most exaggerated sufferings It is in such cases that we have the severe dragging and bearing-down pains, the difficulty and pain in passing urine, the pains passing to the arms and simulating hip disease, and extreme restlessness and irritability, causing great suffering. So it is in cases of dyspepsia, disease of the liver, and heart disease. We witness an exaggerated form of the disease in cases of spinal irritation induced by onanism, or in some cases the irritation induced being of the medulla oblongata, the effects will be seen in organs supplied by the pneumogastric nerve, and the first cervical sympathetic ganglia.

Dr. Turck, of Vienna, remarks: "If we were to attempt an illustration of our remarks as to the diagnosis, we could not take a more apt instance than that of abdominal tenderness. When it depends upon spinal irritation, it will be found that the history of the patient presents instances of her having previously suffered from *neuro-emic* affections. The affectible state of the cutaneous nerves of the abdomen is never observed to occur alone, the nerves of the abdominal viscera suffer also. The kidneys, for example, secrete less or more urine than natural; if less, the deficiency amounts occasionally to complete ischuria; if more, the urine is pale and diabetic. And so there is one or the other of the two opposite states of constipation and diarrhœa, but more usually constipation, with spasm of the colon, giving rise to colic. In the more aggravated cases, the motor nerves of the large intestines, bladder, abdominal parietes, and lower extremities, are

also affected: and tympanitis, vesical paralysis, constipation and paraplegia ensue. The tenderness experienced is not simply tenderness on pressure, but it is a tenderness to the slightest touch, and when there is spinal tenderness, for it is not always present in these cases, the tenderness is of the same kind. The abdominal tenderness of peritoneal and visceral inflammation differs altogether from the preceding, both in its history and concomitant symptoms. It is rarely seen in neuro-emic females, except when the cause is quite manifest; as, for example, where there is chronic structural disease of the peritoneum or abdominal viscera, accompanied by inflammation, or when it appears in parturient females as a symptom of metritis. We believe the neuro-emic state is rarely coincident with structural disease within the abdomen, or terminates in it."

In gastric and hepatic disease we find the same class of symptoms, the evidence of suffering being out of proportion to the extent of functional lesion determined by close examination. Here the manifestations of the spinal disease so closely simulate dyspepsia in its various forms, that were it not for the exaggeration of the symptoms, as compared with the known imperfection of the digestive process, we would be frequently mistaken. As it is, we are not only surprised to see such marked symptoms attendant upon comparatively slight derangement of digestion, but more so, perhaps, that the administration of remedies in which we had placed the greatest confidence had failed of producing any benefit. I recollect a case of this kind, in which the patient complained of an exquisite burning in the stomach with marked tenderness on pressure over the epigastrium, with the occurrence of vomiting if much food was taken, and once or twice daily in any event, these symptoms being of seven years' standing. She had been treated for ulceration and other structural disease of the stomach without avail, and finally came into my hands. Accident, more than critical examination, led me to examine the spine, which was found tender on pressure through the entire dorsal region; the application of the irritating plaster to the spine cured the patient in six weeks.

Functional heart disease is not of unfrequent occurrence from this cause, and in some cases is so severe as to endanger life. The spinal irritation in these cases is of the cervical

region. The lungs may also be implicated in the same manner, giving rise to cough, difficulty of breathing, and expectoration. The organs of special sense are intimately associated with the upper cervical portion of the spinal cord, and I am satisfied that a principal reason of the perversity of some of them will be found in spinal irritation. Why do we use counter-irritation to the back of the neck in disease of the eyes and ears? Because it answers a better purpose there than anywhere else, and it does this, as we believe, for the reasons stated.

Diagnosis.—The diagnosis of spinal irritation is easy, when we are led to believe that it exists, from the disproportion between the apparent symptoms and the real evidences of disease, and when on examination, we find tenderness on pressure over the spine. In other cases, the similarity of the symptoms to acute, and more frequently chronic inflammation of organs, and the absence of physical signs of such disease, will be our guide. The case will frequently have to be watched for several days before an opinion can be given.

Prognosis.—The prognosis is usually favorable, yet we occasionally find cases in which it is impossible to reach the disease.

Treatment.—In cases in which there is decided determination of blood to the spinal cord, I should apply the irritating plaster, and continue it so as to produce irritation, but not suppuration; in some cases the suppurative action is beneficial. Associated with this, we might employ the Tincture of Gelseminum, Tincture of Macrotys or Tincture of Bryonia, in the usual doses; sometimes we may also add to this treatment the Iodide of Potassium, and some vegetable alterative, as the Compound Tincture of Corydalis, or Compound Syrup of Stillingia. In some cases, better results will follow a solution of Acetate of Potash, with very small doses of Tincture of Aconite.

If it should be judged from the torpor of the parts to which spinal nerves are distributed, and especially from languid circulation in the parts, that there is congestion of the spinal cord, a different treatment will be advisable. Here, friction to the spine, with the use of salt water, will be better

than counter-irritation, and in place of the remedies above named, I would use Nux Vomica, Quinine, Belladonna, Staphysagria, Rhus Toxicodendron, or Ergot, as was indicated by the individual case. The pill of Nux Vomica, Quinine, Hydrastis and Podophyllin, presents a very good combination.

In the last case, when dependent upon feeble nutrition, we may use stimulant friction to the spine, and when it seems to be the only part of the body so affected, counter-irritation may be used to parts adjacent. Bromide of Ammonium, Carbonate and Hydrochlorate of Ammonia, the Hypophosphites, Cod-liver Oil, Quinine, Nux Vomica, and the bitter tonics, are valuable remedies. I like the action of the Collinsonia in these cases, and have used with advantage the Mitchella; the Senicio, and Santonine will be found useful in cases of irritation of the lumbar spine, with disease of the urinary organs.

In addition to the means above named, we usually adopt the treatment appropriate for the visceral disease. All internal remedies should be given in small doses and continuously, giving plenty of time for their effects to become manifest before changing them for others. No plan of treatment will be successful unless the hygienic condition of the patient is attended to; if possible, she should have pure air, out-door exercise, a nutritious diet, and agreeable mental occupation, these in many cases are as important as the appropriate remedies.

CURVATURE OF THE SPINE.

Curvature of the spine occurs most generally in the young, and is rare after the age of twenty-five. In all cases it is the result of enfeebled vitality, either congenital or induced by destitution or over-mental exertion, or sexual excitement. In some cases this manifests itself in the form of scrofula or tuberculosis, and in such case we may expect disease of the bones. Two varieties of curvature are met with, lateral and posterior, both occurring most frequently in the dorsal region, though at last always compensated by curvature of the lumbar and cervical portions.

Lateral curvature may be dependent upon affections of the muscles, as hypertrophy, atrophy, spasmodic contraction or inflammation; upon general debility, the body not being suf-

ficiently strong to support itself in the erect position; upon obliquity of the pelvis, the result of injury or disease of the lower extremities; or upon altered capacity of one side of the chest; upon rachitis or softening of the bones, or defective developement of the vertebra. Posterior curvature is most generally dependent upon disease of the bodies of the vertebra, though in some cases it undoubtedly results from debility, and the habit of throwing the head and shoulders forward in sitting and walking; in the last case being very mild. Practically we have to study the case: first, with reference as to whether it depends upon disease of the muscles or bones; second, whether its continuance depends upon determination of blood or upon feeble circulation; and third, as regards the general health, whether there is simple debility from imperfect digestion and assimilation, or a scrofulous or tubercular cachexia. The success of the treatment will depend upon accurate diagnosis as regards these points, as in many respects it must differ in different cases.

SYMPTOMS.—The symptoms of curvature of the spine vary greatly in different cases, in some being very marked, in others obscure Usually the child's health is noticed to be feeble, its appetite variable, and digestion and assimilation imperfect. It may or may not complain of pain in the back, but it will be noticed that the back is weak, and that it makes unusual efforts to rest it. In lateral curvature, the disease is most usually dependent upon local debility of the erector muscles of the spine, and there is freqently no complaint, except from weakness of the back, and the symptoms of general debility above named. If partially owing to spasmodic action, pain would be a constant attendant, though usually there would be no tenderness on pressure. If the result of disease of the bones, as in most cases of posterior curvature, in addition to more or less pain, there will be tenderness on deep pressure. In these cases the disease of the bone causes irritation of the spinal cord, and we have the symptoms heretofore named.

DIAGNOSIS.—An examination of the spine will determine the existence of curvature, and it is usually not difficult to determine which is the primary and which is the curvature of compensation. In almost all cases of lateral curvature we

will find the fault to exist principally in the muscles at first, though as the disease progresses irritation is frequently developed, resulting in spasmodic action, and finally in atrophy or softening of the bones; hence spinal tenderness will usually result in the latter part of the disease, and not at its commencement. In posterior curvature, we sometimes have the most marked evidence of scrofulous cachexia, and in most cases we have marked general debility. It will be recollected that the disease of the bodies of the vertebra may be a true inflammation, or result from deposit of tubercles and scrofulous material, or may be simple softening from rachitis. In the first case the pain will be marked and decided, in the second there is simple irritation and aching of the part, with tenderness on pressure; and in the last we will have the previous curvature and deformity of the legs and pelvis, in addition to the absence of pain and tenderness, to aid us in the diagnosis. Mr. Solly believed that softening of the bones might be entirely local, and might be dependent upon nervous exhaustion; in such case the symptoms would be obscure.

PROGNOSIS.—In lateral curvature a favorable prognosis may be given in many cases, the deformity being nearly entirely removed, or it may be simply arrested, the body so accommodating itself to it as to give rise to but little subsequent trouble. In posterior curvature the best result usually obtainable is to stop the disease and prevent further curvature. It is true that in some cases we may partially correct the deformity, but in a large majority the attempt is attended with injury rather than benefit. If there has been destruction of the bodies of the vertebra, the best result is anchylosis of the bones and of course permanence of the curvature; and if this is prevented by instruments for extension, the life of the patient will almost surely be sacrificed.

TREATMENT.—In all forms of spinal curvature attention to the general health is one of the most important points in the treatment. Those bitter tonics that improve the tone of the stomach, and give the patient a good appetite and power of digestion are applicable. I like the effect of the Tinctures of Hydrastis, Collinsonia, Cornus and Ptelea; but in some cases the Hydrastine and Quinine, with a small portion of Podophyllin and the Extract of Nux Vomica, if there is noth-

ing to contra-indicate it, will be found best. Iron in some form is usually necessary, and though most writers recommend the soluble preparations, I prefer the Carbonate or Phosphate. If there is disease of the bones assuming the form of softening, Phosphoric Acid has been recommended; and from the little experience I have had with it I am inclined to believe that it will generally be found advantageous; we would commence its administration in doses of two drops of the dilute acid, four or five times a day, and increase it if deemed best.

When the symptoms would lead us to believe there was scrofulous disease of the bones, the vegetable alteratives will be brought into requisition. A combination of Yellow Dock and Tag Alder, with small portions of Acetate of Potash, has answered my purpose well. The Compound Tincture of Corydalis is very efficient, and may be combined with Iodide of Potassium. If there is great irritability of the nervous system I would substitute the Iodide of Ammonium for the preparations of Potash. These remedies should not take the place of tonics and restoratives, but should be associated with them in such manner as that normal digestion and assimilation shall be the first object in view. A nutritious and easily digested diet should be prescribed, and frequently a small amount of malt liquor is advisable. The sponge bath should be used daily, sometimes of simple water, salt and water, or stimulants, as Capsicum or Mustard, or the mineral acid baths, or of a decoction of the bitter tonics and astringents.

If there is simple loss of muscular power, as in many cases of lateral curvature, we would recommend open air exercise, and friction of the spine with cold salt water, and sometimes the use of Electricity. These are the only cases in which exercise is permissible, and then it should be so regulated as not to prove exhaustive. Sir B. Brodie recommends that the muscles of the back be strengthened by climbing and other exercises, for which, in delicate girls, friction or shampooing for an hour or two daily might be substituted; and the patient should lie down for a part or a whole of the time she is not engaged in exercise. Mechanical support may be used in these cases, but it should always permit free movement. If in any case there is irritation and pain, with tenderness on pressure, the child should maintain the recumbent position, and especially is this the case in posterior curvature. Rest is all-

important in these cases, until the disease is entirely arrested, and though it will sometimes seem as if the the child could not bear the confinement, we will find that it absolutely improves in every respect while maintaining the most perfect quiet. Counter-irritation is of much importance in these cases, but we must be careful not to carry it so far as to unduly irritate the nervous system, or induce debility by the excessive discharge. The irritating plaster is a favorite application, and will usually be found the best of any. It may, in severe cases, be replaced by the issue, and in others by two, three, or four small setons, as common surgeons' silk, passed through a fold of the skin on each side of the spine.

In cases of disease of the bones, Dr. Pirrie remarks: "That any attempt to remove the curvature would be injudicious. Anchylosis is the only favorable termination to be hoped for, and therefore the object to be aimed at in treatment should be to place the patient under circumstances most likely to conduce to that result. With that view it is indispensable, first to keep the patient in a recumbent position, so as to remove from the diseased parts the pressure of the superimposed weight, and to preserve the parts in a state of perfect quietude in that position; and secondly, to use all means, judicious and available in the circumstances of the case, for maintaining the general health. One particular advantage which results from preserving the parts at perfect rest in the horizontal position is, that the removal of the irritation caused by the superincumbent weight from the diseased parts diminishes the danger of the formation of abscess, which is a most unpromising occurrence, and must induce the gloomiest apprehensions as to the ultimate result."

A most excellent means of attaining perfect rest is afforded by a common camp cot, with the head elevated about a foot, and covered with a soft hair mattress; two crutches softly padded, should pass from the foot up to the arm pits, and an india-rubber webbing attached to the arms of these to support the trunk. In this apparatus there is constant gentle extension; the body is supported by the webbing, the patient lying on the back, or face downward, as seems best suited to the case. For full description the reader would do well to consult Bigg on Deformities, the second volume containing most explicit descriptions of apparatus and well drawn wood-cuts.

APOPLEXY.

Apoplexy may occur at any age, but is much more frequent after middle life than before, and occurs more frequently in the male than in the female. It is in all cases dependent upon lesion of the brain, though this is not always manifest, and may be induced by various causes. In the severe cases there is extravasation of blood, cerebral hemorrhage, or other organic disease producing pressure; in the milder forms it may be dependent upon congestion. The fact that tonic contraction of the muscles of the neck existed in all cases has been taken as conclusive evidence that this, by preventing the free flow of the blood from the brain by the jugular veins, was the cause of the convulsions, and of the extravasation of blood afterwards found. The popular impression, and to some extent the opinion of the profession, that a condition of plethora, with a full habit of body, florid face, and short neck, was necessary to apoplexy, is incorrect, as the disease occurs quite frequently in persons the very opposite. Thus, in sixty-three cases described by M. Rachoux, ten were plethoric, twenty-three were thin, and thirty were of ordinary habit of body.

Among the causes giving rise to apoplexy we will find that diseases of the heart exercise an important influence, either sending the blood to the brain with increased force, or preventing its free return. Some authors have contended that previous disease of the blood vessels of the brain was an important element of apoplexy, and that in a majority of cases they had undergone fatty or other degeneration. The exciting causes are various, as intense emotional excitement, intemperance in eating and drinking, and long continued and exhausting mental or physical exertion. Possibly the most frequently exciting cause is undue distension of the stomach by eating, when the system has been previously exhausted by mental exertion, or when the system is enfeebled from other causes.

Symptoms.—Apoplexy may be sudden in its occurrence, or may be preceded by premonitory symptoms. In the last case, for a few hours, or even days, the patient feels an unnatural weight and tightness of the head, ringing in the ears, and occasional inability to control the voluntary muscles. These symptoms may be constant, or may last but a moment and

then pass off; they are not definite, but should cause suspicion of danger of an apoplectic seizure. In other cases, the patient is suddenly attacked with dizziness and vertigo, with ringing in the ears, disordered vision, and partial or entire loss of consciousness for a few moments; afterwards he feels dull and stupid, can not arouse himself, staggers when he walks, his voice is thick and husky, and he reasons with difficulty. These symptoms occurring after a full hearty meal, or after great excitement, are indicative of a serious apoplectic attack. In other and possibly the majority of cases, there is nothing to warn the patient or friends of the approaching danger.

The attack of apoplexy is sudden, the patient losing all consciousness instantly, and falling wherever he may be situated; the countenance is livid, there is relaxation and immobility of the muscles, or a semi-rigid condition, stertorous respiration, and a slow, full, and sometimes hard pulse. There is complete arrest of volition, and of the influence of the brain over the body, the patient lying in any position in which he may be placed, and only those functions, respiration and the circulation of the blood, which are dependent upon the spinal cord and sympathetic ganglia, are carried on. In some cases the shock is so great that the extremities become cold and livid, and a cold, clammy perspiration breaks out over the entire surface In other cases the attack is not so severe, there being slight spasmodic movement, and inability to swallow. In those cases in which there is a mild premonitory attack, the symptoms of cerebral disturbance continuing, we may expect the severe paroxysm with the aggravated symptoms above named, and very generally a fatal result.

The apoplectic seizure may last but a few moments in mild cases, the patient slowly recovering consciousness and power over his body; or it may be very greatly protracted, lasting for hours, or terminating in a deep coma, with more or less paralysis, from which the patient slowly recovers; or the coma deepens, and he dies some days after the first attack. Paralysis is of tolerably frequent occurrence as the result of apoplexy, and most usually takes the form of hemiplegia.

DIAGNOSIS.—Apoplexy is usually diagnosed with ease, when we can get the previous history of the patient. The suddenness of the attack, the person being apparently in good health,

complete loss of consciousness, flushed face, stertorous respiration, complete immobility, and slow, full pulse, are symptoms that can not be mistaken. Complete intoxication, or what is popularly known as "dead drunk," may be mistaken for apoplexy; the only means we have of determining the difference, in some cases, being the smell of liquor on the breath, and the tendency to vomit, and character of the material brought up. Most generally we are able, by moving the patient, to elicit some sound, showing that it is not apoplexy. In concussion of the brain there is no possible means of diagnosis, except the injury of the head, and very frequently this is not perceptible, or seemingly no more than might have resulted from the fall during the apoplectic seizure; as we have to be guided entirely by the history of the case, the fact of the patient's having received a fall or blow sufficient to have produced concussion, must be taken into consideration. It makes no difference in the treatment whether the diagnosis be made or not, but it is frequently of the greatest importance in reference to a criminal trial. Epilepsy and hysteria can not be mistaken for apoplexy, for in both there is convulsive movement, and in the first, frothing at the mouth; it is true that the coma of the second stage might sometimes be so mistaken, as might the coma following inflammation of the brain, had we not the previous symptoms to guide us.

PROGNOSIS.—Apoplexy is always a dangerous disease, though very many persons recover from a first attack. The patient may die almost immediately, or may live for two or three days, or finally die during reaction. In many cases the apoplectic seizure is followed by paralysis, usually paraplegia. We fear a fatal result when the respiration is very slow, labored and stertorous, with a weak pulse, a cold perspiration, and involuntary discharges of the fæces and urine. If the disease has continued over twenty-four hours, with continued deep coma, we have but little hopes of recovery. So, also, in cases in which the coma having partly passed off, the patient becomes delirious, and frequently puts his hand to a determinate part of the head. The prognosis is favorable in cases in which the respiration gradually becomes less stertorous, the surface and extremities warm, and the pulse full and of normal frequency.

POST-MORTEM EXAMINATION.—In some cases no evidence of lesion can be discovered to account for the disease, unless possibly it might be an increased fullness of the vessels of the brain, and prominence of the puncta-vasculosa when incised. In a majority of cases, however, there is extravasation of blood, sometimes to an extent not greater than the size of a pea or cherry, but occasionally as much as one or two ounces. In other cases, a portion of the brain seems to be softened, and having in most cases a well defined, reddish tint, which is said to be produced by infiltration of blood. The fluid in the ventricles and cavity of the arachnoid is sometimes increased, sometimes diminished, and seems to bear no relation to the disease except in cases dying during reaction, when it is almost always increased, and presents evidence of inflammatory action.

TREATMENT.—As in some cases there are premonitory symptoms, we may first consider the prophylactic treatment of the disease. I have already noticed the fact that apoplexy occurs equally in stout, fleshy persons, and in those of a spare habit, but we now wish to know whether there is determination to the brain, congestion, or feeble circulation. In the first case the face is flushed, exhibits the color of arterial blood, the head is hot, the pulsation of the carotids very manifest, and the pulse full and hard. To relieve this condition we would put the patient upon the use of the sedative, with Gelseminum, as—℞ Tinct. Veratrum gtt. x., Tinc. Gelseminum ℥ss. to ℥j., Water ℥iv.; a teaspoonful every one or two hours. If the patient complained of acute pain in the forehead, the pulse being small and sharp, the remedies would be Aconite and Rhus. If the pulse was hard, with dull pain in the base of the brain, give Aconite and Bryonia. The patient might have a hot stimulant foot-bath, and in some cases a stimulant hydragogue cathartic, and the kidneys might be stimulated to action by the saline diuretics.

The heavily coated tongue, dirty mouth, and fetid breath, are not uncommon, and the old-fashioned use of cathartics does not remove the unpleasant symptoms. If the tongue is pallid and dirty, give the Sulphite of Soda in the usual doses. If not pallid we would make a prescription of—℞ Salicylic

Acid grs. xx., Acetate of Potash ℥ij., Water ℥iv.; give a teaspoonful every three hours.

Congestion, marked by dullness of intellect, inclination to sleep, and expressionless eyes, is best treated with Belladonna or Ergot, in the usual small doses. If the face is full, the eyelids œdematous, associate with these the Apocynum.

If the cerebral circulation is feeble, as we will see from the pallid face, sunken eyes, dilatation of the pupil, ringing in the ears, disordered vision, etc., we would use tonics and stimulants, with Phosphoric Acid or the Hypophosphites and nutritious food, to overcome the difficulty. In this case a total cessation of mental labor should be required, and all unnatural excitement avoided.

In the treatment of the attack the first thing to be thought of is, to place the patient in a comfortable position where there is a free circulation of air, loosen his neck-tie and shirt collar, and possibly his clothing; respiration is now the essential function. The stertor is caused by the tongue falling backwards, and when this is marked, the position should be such that the face being turned downward, the tongue will drop forward; if this is not sufficient, draw it forward and hold it with a tenaculum. When there is greatest need of help medicines can not be given, owing to paralysis of the muscles of deglutition; and when they can be given it is usually best to wait a few hours to determine what should be given. But in the meanwhile stimulant applications may be made to the extremities, and stimulant cathartic enemas may be used to free the bowels. As the attack passes off we examine the patient carefully to determine what should be given. In one case the full hard pulse will show a condition approaching inflammation, and we will give the sedatives, with possibly Bryonia, Apocynum or Macrotys. In another, the dull eye, oppressed pulse, and low temperature will suggest Belladonna or Ergot. The dull pain in the head with ringing in the ears, would call for the administration of Iodide of Ammonium.

As soon as possible after the attack, the patient should be placed on a lounge or hard bed, in the center of a cool room. If possible, he should be kept on his side, with his face turned downward, so as to avoid the falling back of the tongue, which I have no doubt so impairs respiration when the

patient is lying on his back as to lead to a fatal result by slow asphyxia, in cases which would otherwise have recovered. If the attack has been preceded by a hearty meal, or, as in some cases, by the taking of two or three times as much ingesta as the stomach is capable of appropriating, the stomach should be evacuated, with a Salt and Mustard emetic, preparatory to other treatment.

If the attack has lasted beyond twenty-four hours, we may be satisfied that there is effusion, or that the cerebral hemorrhage has been considerable. In these cases we would keep the bowels open, the skin moist and active, by the use of baths and the internal administration of diaphoretics, and secretion from the kidneys by the use of an alkaline diuretic. As a diaphoretic, I prefer the Specific Tincture of Asclepias and Carbonate of Ammonia, and as a diuretic, a solution of Acetate of Potash. When the circulation seems feeble, I believe it to be good practice to give the patient Quinine and Hydrastine pretty freely, and in some cases a small quantity of stimulants is advantageous.

COUP DE SOLIEL.

Sun-stroke is such a common affection in this country, during the heat of summer, that we would expect to find it described in all works on practice, and frequently mentioned in periodicals. But, strange to say, with the exception of two or three notices in foreign journals, which were republished in this country, the literature of the disease is confined solely to the daily papers, which report the attacks of the disease and the deaths from it, as they would the falling of a man from a house, or his being shot in a street rencontre.

The predisposing causes of the disease are such as enfeeble the frame and oppress the nervous system; thus, we find it to occur most frequently after slight attacks of sickness, after severe physical exertion, and especially after exhaustion of the nervous system. Exposure to the rays of the sun, the temperature being from 90° to 100° in the shade, is the direct cause; and though in a majority of cases this exposure has been prolonged for hours, and day after day, in others but very few minutes are necessary for its production.

As regards the pathology of sun-stroke there is great discrepancy of opinion. Dr. Dunglison regards it as an inflam-

mation of the brain or its meninges; others as an exhaustion or paralysis of the brain; others as a species of apoplexy, and others again as an apoplexy of the lungs. Dr. Pirrie remarks that "The mode of death in all but the rapid form, is evidently by apnœa, or at all events the symptoms of apnœa plainly predominate, and hence the name 'heat asphyxia' given by some to this most alarming disease. The symptoms are distinctly those of that mode of dying in which death commences in the lungs; but by what means the circulation begins to be arrested in the lungs—or, in other words, the manner in which high temperature operates in causing stagnation of blood in the lungs—whether it be by giving rise to immense engorgement, or by causing imperfect arterialization of the blood—I do not feel myself qualified to give an opinion." It is my opinion that the action of heat on the brain is productive of cerebral syncope, or partial paralysis of the nervous system, and that this, by enfeebling the action of the heart and lungs, causes the engorgement of the latter and difficulty of respiration.

Symptoms—Most generally the patient has a premonition of the approaching sun-stroke, in a feeling of giddiness, with heaviness of the head, and feeling of tension as if it was bound round with iron, ringing in the ears, and disordered vision. The feeling of faintness and difficult respiration is sometimes so marked, that with the other symptoms the patient is compelled to seek shelter, or to sit or lie down. Probably before reaching the desired place he suddenly loses consciousness and falls to the ground. In other cases the premonitory symptoms seem to be of brief duration, or to have been entirely absent. The patient suddenly falls unconscious, while walking along the street, or attending to his business, and though there may be brief returns of consciousness, it is not complete for several hours, or the patient may die in a short time after the attack. Irritability of the bladder is said to be one of the most certain symptoms of an attack.

If we examine a person suffering from sun-stroke, we will find the pulse frequent, sharp and irregular, sometimes soft, small, and easily compressed; the respiration is laborious, but not stertorous; in most cases the face is turgid but dusky, and the head hot. In some cases there is nausea and vomiting or

retching, and occasionally involuntary discharges of urine and fæces. These symptoms may continue to increase, the disease terminating fatally in from one to two hours, or they may gradually pass off, the patient regaining consciousness, but being excessively feeble. It usually requires some time for the person to regain his strength—the head feeling heavy and dizzy, with disposition to syncope on slight mental or physical exertion. Frequently an irritability of the stomach, with diarrhœa, will remain and prove very intractable.

DIAGNOSIS.—Usually we have but little trouble in making a diagnosis, the occurrence of the disease while exposed to the heat of the sun, the difficult respiration, sharp and frequent pulse, and heat and redness of the face and scalp, are generally sufficient. It might be more readily mistaken for apoplexy than any other affection; yet, if we recollect that in this the pulse is slow and full, respiration slow and stertorous, with complete loss of consciousness, we will not be likely to make the mistake.

PROGNOSIS.—The prognosis is favorable in a majority of cases, though in some the patient is dying from the first of the attack. If the pulse is regular, and respiration sufficiently free to aerate the blood, there is usually but little danger. If, however, the pulse is rapid, irregular, very small, the countenance has a dusky, leaden hue, the lips purple or livid, with labored respiration, the patient will, in all probability, die.

POST-MORTEM EXAMINATION.—Mr. Longman remarks: "That in all the cases much the same appearances were presented, as if the patient had died asphyxiated from some cause. Thus, excessive engorgement of the lungs, amounting generally to complete obstruction of the pulmonary circulation, and, in parts, having all the appearance of true interstitial apoplexy, was most remarkable. The cerebral congestion, less marked in character and less constant in amount, seemed to me, *secondary* to the failure of the due performance of the act of respiration, and perhaps resulted from loss of tone in the vessels, and from enfeebled action of the heart, owing to the imperfectly oxygenized blood it was receiving."

TREATMENT.—The patient should be removed to the shade as speedily as possible, and placed in a recumbent position, care

being taken that he is not crowded on by spectators, but that a free circulation of air is allowed. Cold water should then be freely applied to the head, the extremities rubbed with stimulants, and if possible a sinapism applied to the chest and epigastrium. Diffusible stimulants may be employed freely; I prefer the Compound Tincture of Cajeput or Tincture of Xanthoxylum, Tincture of Camphor, or when these can not be obtained, Brandy and Capsicum or Ginger. In some cases, a brisk purgative, as Croton Oil and Podophyllin, will answer a good purpose; but frequently there is such irritation of the gastro-intestinal mucous membrane as to prevent their administration. Ten grains of Quinine, with an ounce of Brandy, is a most excellent remedy to overcome the nervous depression, and may be used in place of the medicines first named. If the face is much flushed, the head hot, and throbbing of the carotids, wet cups applied to the neck and spine will be useful, and may be followed by a sinapism, if there seems to be need of further derivation.

When the patient commences to recover he should be kept very quiet and free from excitement, and should not be moved until late in the day. A small quantity of some diffusible stimulant, with occasionally a grain of Quinine an hour, is all that the patient needs. For two or three days, or until the effect has passed off, the patient should be quiet, and careful in his diet. The bowels should be kept regular, and the skin and kidneys acting. A gentle bitter tonic, as the Nux Vomica pill heretofore named, will facilitate convalescence. If there is headache, with irritation of the stomach, a solution of Acetate of Potash will usually be the best remedy, as these symptoms most usually depend upon diminished secretion of urine.

EPILEPSY.

Epilepsy is one of the most serious of the diseases of the nervous system, not because of its fatality, for it runs a very chronic course, but because there is no tendency to spontaneous arrest, and medicine has heretofore had very little influence upon it. One of the most distressing features of the disease is, that it gradually impairs the mind, until the person, once bright and of sound mind, becomes a driveling idiot or a

raving maniac. The disease usually commences in childhood, most frequently between the ages of six and twelve.

The causes of epilepsy are various, and not very well understood. They may be divided into *intrinsic* and *extrinsic*, in the first case existing in the cerebro-spinal nervous centers, or their immediate surroundings, and in the second existing at a distance, and affecting the spinal cord through the nerves. Of the first, we may instance inflammation and determination of blood to the cerebro-spinal centers, disease of the meninges and of the bowels, and injuries of the bones, giving rise to compression; or continued irritation, as by the presence of a spicula pressing the nerve-substance. Derangements of the blood may sometimes give rise to epilepsy, as in the retention of the solids of the urine and other changes that we are not cognizant of. By an *extrinsic* cause, we understand one in which the irritation being set up at a distance is propagated along the nerve trunks to the spinal cord, where, setting up an irritation, it manifests itself through the excito-motory system of nerves. The most simple instance of this action is witnessed in the case of cramps of the muscles of the extremities from irritation of the intestinal canal, as in cholera morbus, and in the case of infantile convulsions from teething, or from gastro-intestinal irritation. Epilepsy may in this way arise from irritation of the stomach from crude indigestible food, from worms, from irritation of the bowels, the kidneys, bladder, or genital organs. The cause being sufficient to set the disease going, may disappear entirely in a few days or weeks, and yet the epileptic attacks continue. It would seem that when this abnormal action is once set up, the tendency to its continuance is the same as in healthy functions; but why this is we know not, and neither can we give any probable theory.

As regards the *pathology* of epilepsy, we are much in the dark. In some cases it would seem to be dependent on a too free circulation of blood in the nervous centers—determination of blood; in other cases upon a sluggish circulation—congestion; and in still others, upon some defect in nutrition. There are cases in which it is very manifest that the condition of the blood is the exciting cause of the epileptiform seizure, though we must still imagine an unnatural irritability of the nerve centres to be so impressed. Thus, I have

seen cases in which every convulsion was preceded by deficient secretion of urine; and so long as this secretion could be maintained in the normal condition, so long would the patient be free from its seizure. Cases in which the disease is dependent upon the amount and character of the menstrual discharge have come under the notice of almost every one. Experience, however, has proven to me, that epilepsy is eminently a disease of debility of the nervous system, even in cases in which there seems to be the most evident symptoms of irritation and determination of blood.

Dr. Radcliffe has written a most interesting paper on the pathology of convulsions, and draws the following conclusions: "1st. The epileptic and epileptiform paroxysm is not unfrequently preceded by signs of defective respiration. 2d. It is usually accompanied by a state of unmistakable suffocation. 3d. The condition of respiration during convulsion is one which supports the notion that the convulsion is connected with depressed, and not with exalted vital action. 4th. In the chronic form of convulsive disorders, the interparoxysmal condition is usually marked by evident signs of feeble circulation. 5th. The epileptic and epileptiform paroxysm is usually, if not invariably, preceded by signs of failure in the circulation. 6th. In the fully developed paroxysm, the pulse is sometimes aroused to a considerable degree of activity, not because the arteries are receiving a largely increased supply of *red* blood, but because they are then laboring under a load of *black* blood, as they are found to labor during suffocation. 7th. Convulsion is never coincident with a state of active febrile excitement of the circulation. 8th. Epileptiform convulsion is a direct consequence of sudden and copious loss of blood. 9th. The condition of the circulation during convulsion is one which supports the notion that the convulsion is connected with depressed, and not with exalted vital action."

It is of but little use to try to study the original cause in many cases of epilepsy; for, as has been before remarked, it has possibly passed away months before our examination. There is always, however, an exciting cause, which it is necessary to determine, if possible, as upon its removal, the success of our treatment will in great measure depend. I have known it to be a failure of excretion, an imperfection in

digestion, derangement of the menstrual function, excessive mental emotion, and not unfrequently excessive sexual excitement.

SYMPTOMS. — In some cases there are brief, premonitory symptoms of the approaching seizure, and rarely, the patient has notice of it for hours. The sensations differ in different cases, sometimes a sense of weight and oppression in the head, with giddiness and loss of voluntary power; in others, a coldness passing from the feet upwards, and terminating in the epileptic seizure when it reaches the head. In the more protracted cases there is usually a marked dullness and hebetude, noticed by the friends, and the patient feels a loss of consciousness that is very unpleasant.

In an attack of epilepsy the patient becomes suddenly unconscious and falls to the floor, or wherever he may be situated. Involuntary movement from spasmodic contraction and relaxation is characteristic of the disease, and may be very intense or mild. If severe, the limbs are thrown in various positions, the trunk contorted, and the features remarkably changed. First one group of muscles contract, and then another, so that parts are kept in constant movement. The lower jaw and tongue being also affected, we find that usually the latter organ is severely bitten if means are not taken to avoid it. The patient usually froths at the mouth; respiration is normal in frequency, and the pulse but little changed, except that it is smaller and feebler. The countenance is not only distorted by the convulsion, but in some cases is turgid and purplish, or almost black. Frequently the urine, and sometimes the fæces, are passed involuntarily during its continuance.

The duration of the epileptic seizure is very variable, sometimes lasting but a few seconds, and at others for fifteen or twenty minutes. The patient may have but one attack at a time, or they may succeed one another at short intervals until quite a large number has passed. When the attack ceases, the patient becomes completely relaxed, and usually falls into a deep, comatose sleep, from which it is almost impossible to arouse him, for an hour or two. The frequency of their recurrence varies in different cases; in some they do not appear oftener than once a month, or even less frequently;

in others, every week, or almost every day. Sometimes they are so distinctly periodic that the return can be closely calculated, but at others they are very erratic in their course. In many cases there are slight seizures during the intervals between the principal attacks; in these the patient seems to lose consciousness for but a moment, and stares vacantly at persons present; passing off, he has no recollection of it, nor of the epileptic attack.

DIAGNOSIS.—We diagnose epilepsy from apoplexy by the fact that in the first there is continual spasmodic action, while in the last there is not the slightest motion; in the one there is frothing at the mouth, in the other it occurs but rarely; in apoplexy the respiration is slow and stertorous, and the pulse full and slow, while in epilepsy respiration is of usual frequency without stertor, and the pulse is small and frequent. We diagnose it from hysteria by the previous history of the case, and by the fact that we are able to determine that there is not complete loss of consciousness in the latter case.

PROGNOSIS.—So far as regards the cure of the disease, the prognosis is unfavorable, unless the means here recommended prove more serviceable than those heretofore used. But as before remarked, it runs a course of years, and the patient dies finally of some other affection.

POST-MORTEM EXAMINATION.—In a majority of cases, the scalpel reveals no lesion to account for the severe disturbance of the system during life, and what lesions are found generally have no relation to the epileptic affection. In some the evidence of slow inflammatory action is found in the brain or spinal cord; or, in rare cases, a morbid growth in the nervous substance, or from the meninges or bones, is observed; and in others a change of structure, usually softening, has occurred. These, however, form but a small fraction of the cases. In other instances, some organ, as the stomach, kidneys, uterus, etc., is found diseased, and as the epilepsy made its first appearance with the symptoms of these diseases, we have good reasons to believe that they acted as exciting causes.

TREATMENT.—The treatment of epilepsy is of two kinds: that for the arrest of the paroxysm, and that for the radical

cure of the disease. If called to see a person suffering from an attack of epilepsy, we would place the patient in such a position that he would not be likely to injure himself, and if the convulsive action was severe, get a friend to hold a cork or piece of soft wood between the teeth to prevent biting the tongue. Usually this is all that is necessary, except in cases where the patient has a succession of attacks. In these cases, as soon as the first paroxysm commenced passing off, we might administer the Compound Tincture of Lobelia and Capsicum, in half-teaspoonful doses every five or ten minutes, until nausea is induced, which, in a large majority of cases, will prevent a return of the convulsion; or we may use the Tincture of Gelseminum for the same purpose, giving it in doses of from ten to twenty drops, or even half a drachm of the common tincture every ten or fifteen minutes, until the full relaxant influence of the remedy is produced. A combination of Sulphuric Æther, Liquor Ammonia, and Tincture of Assafœtida, may be used for the same purpose, but is not as efficient as the preceding measures. If need be, stimulant applications may be made to the lower extremities and to the spine, but usually this is not necessary.

As regards a radical cure we may attempt it in all cases in which there is no structural lesion of the spinal cord or brain, or their enclosures, to account for the disease; if there is, the case becomes one for the surgeon rather than the physician, though operations thus far have proven very unsuccessful. If we can detect any lesion of function, especially if it seems to bear a relation to the epileptic seizure, we would employ remedies for its removal. Thus, in rare cases, a cure will result from the removal of worms, and relief of irritation of the intestinal canal; from the relief of menstrual irregularity; by establishing and maintaining free secretion from the kidneys, when functional lesion of these organs has been prominent, etc. In some cases, the disease appears to be dependent upon spinal irritation and determination of blood, and occasionally a cure may be effected by the use of the irritating plaster to the spine, the administration of Tincture of Gelseminum, and the use of those other measures recommended under the head of spinal irritation. Belladonna, Ergot and Nux Vomica may be used when there seems to be feeble circulation in the nervous substance and tendency to congestion,

manifested by symptoms of paralysis, or a feeling of deadness, coldness, or of tingling, as if the part was asleep.

In a large majority of cases, however, there is no lesion that would seem sufficient to occasion the epileptic seizure; and even when there is, and we have removed it, and restored all the functions of the system, the nervous disease will still continue. Here, our treatment will be, to a great extent, empirical; it is true, we correct all lesions of function, and get the system in as healthy a condition as possible, but after this we give remedies simply because they have proven efficient in other cases. I have employed the Bromide of Ammonium in my practice, with the most marked success, sometimes using it alone, and at others in combination with other remedies; I prescribe it in the proportion of half an ounce of the salt, to four ounces of water, of which the dose is a teaspoonful four or five times a day. If there is feebleness of the system, and especially of the organs of digestion, the Nux Vomica pill, heretofore named, proves useful. Frequently I associate with it:

℞ Tincture of Lobelia,
Tincture of Valerian, aa. f℥j.
Tincture of Gelseminum, f℥ss.
Simple Syrup, f℥jss. M.

Give in teaspoonful doses every four hours, alternating with the other. I have used Œnatha Crocata with good results, and it is a remedy to be tested when others fail. The dose is small, and should be continued some time.

At present I am using Belladonna, alternated with Digitalis in those cases presenting evidences of enfeebled circulation, and thus far with excellent results. These remedies are used in small doses.

All undue excitement must be avoided in epilepsy, the sufferer leading the most regular life. Some employment should be furnished that will amuse the mind, and keep it normally active, but much mental exertion is injurious; novel reading, or anything in which the mind becomes deeply absorbed, proves hurtful. Above all things else, excessive sexual excitement is most injurious, either as solitary vice or too frequent connection, and it will become the practitioner's duty to examine into the case with reference to this matter, and give the necessary advice.

CONVULSIONS.

Convulsions occur far more frequently during childhood than after puberty, though they may be occasionally noticed at all ages. The causes giving rise to them are various. Sometimes they are produced by disease of the brain and spinal cord, as in determination, inflammation, and some obscure structural lesions; at others they arise from an external irritation, it being transmitted to the spinal cord, and giving rise to excited reflex action. According to Dr. Marshall Hall, convulsions are dependent upon irritation of the *true* spinal system, and though this occurs in some cases from causes acting directly upon the nervous system, it more frequently depends upon an irritation of some distant part, transmitted to the spinal cord through the nerves. Thus, we find convulsions arising in this way during dentition, from crude or acrid ingesta, from irritation of the stomach or bowels, from the irritation produced by worms, and from inflammation of internal organs, or disease of the surface, attended with great irritation and pain.

SYMPTOMS.—If convulsions occur during disease, they are generally preceded by tolerably well marked symptoms, by which the close observer may anticipate their approach; and though not always constant it is well to give them due consideration. The most marked of these, is a sudden, jerking, involuntary movement of the extremities, and quick, grasping movement of the hands. This will be observed as well when the child sleeps as when awake, and is sometimes increased by motion. Usually the child sleeps with its eyes partly open, and we observe that the globe of the eye is drawn upward and rolled about, and this involuntary movement of the eye may be frequently noticed when awake. With these symptoms there may be excitement of the nervous system, manifested by restlessness, fits of crying in children, and sleeplessness; or we may have the reverse, the patient being dull, impassible and somnolent.

The attack is always sudden, the patient losing consciousness, and being to a great extent insensible. The convulsion is usually very marked, but in some cases, we will find it slight or entirely absent, the patient being rigid and remaining in

one position. Respiration is labored, in many cases very markedly so, and in these the countenance is turgid and purple, and the features much distorted. The pulse is very frequent and small, or it is soft, feeble and small, and but little increased in frequency. In the severer cases, deglutition is almost impossible, and from the falling back of the tongue respiration is snoring. These symptoms may continue for a moment or two to fifteen minutes or half an hour, in the milder cases terminating in a return of consciousness, but the severer in a deep sopor, from which the patient can not be aroused. One convulsion may terminate the attack, but in many cases one succeeds another for from one to twenty-four hours. The interval between the spasms is frequently marked by nothing more than a relaxation of the entire system, and a restoration of the power of deglutition, the patient being in a semi-comatose condition, and totally unconscious. Children having convulsions once, are usually more liable to them than others, and they will frequently come on from slight causes.

DIAGNOSIS.—The diagnosis of convulsions is very easy, there being no possible chance of mistaking the symptoms. The sudden loss of consciousness, convulsive movement, difficult respiration, and frequent, small pulse, can not be confounded with any other disease. It is true that we can not distinguish between simple convulsions and epilepsy, except by the lapse of time.

PROGNOSIS.—The prognosis is usually favorable, though it is very difficult, in some cases, to arrest the convulsive action. Occasionally cases will be seen that will prove fatal in spite of treatment.

POST-MORTEM EXAMINATION.—The scalpel reveals no constant lesion to account for the symptoms. When there has been determination to or inflammation of the brain, we of course will find the evidence of these lesions. But when the disease has arisen from an extrinsic irritation, there is not the slightest evidence of disease of the nerve centres.

TREATMENT.—Our primary object is to arrest the spasmodic movement which is so alarming to the friends, and, no matter how often seen, to some extent so to the practitioner. Calm-

ness and decision are very important requisites in this case, as all around the patient is excitement, and a hundred expedients to benefit the sufferer are proposed.

No speedier or better means of stopping convulsive action is known than Chloroform by inhalation. There is no danger in its careful use, and when the convulsive action is checked, the physician can tell what remedies to give for cure. The only safe way to give Chloroform is from a folded napkin or handkerchief "cupped," a half teaspoonful poured in it. This is held such distance from the nose as to give free admission of air for respiration. If one hand is held its relaxation will tell of the subsidence of convulsive action.

In the pregnant woman, or in puerperal convulsions, I prefer the hypodermic injection of Morphia. One-fourth of a grain will pretty surely give relief. There are other cases of convulsions from extreme irritation, where the hypodermic use of Morphine is the best treatment.

As soon as the convulsion is checked, we have to determine the cause, if present, the pathological conditions, and the indications for remedies.

Gelseminum is the remedy if there is a flushed face, hot head, and contracted pupils. Bromide of Ammonium if there is still muscular twitchings. Lobelia if the pulse is full and oppressed, with oppressed breathing. Belladonna or Ergot if the patient is dull, drowsy, and the eyes dull, with dilated pupils. Rhus if the patient starts in his sleep, cries out sharply, has a small, sharp pulse and frontal headache.

It must be remembered that until all danger from convulsions has passed away, the Chloroform is to be kept at hand ready for use. It is also well to have a solution of Bromide of Ammonia ʒss, Water ʒiv, which may be given by an attendant in teaspoonful doses, if any symptoms of convulsive action should show themselves.

If the symptoms of convulsions are noticed, we may almost always prevent their occurrence by the administration of small doses of Tincture of Gelseminum. So certain is it in its action, in doses of from six to ten drops every half hour, hour, or two hours, to a child two years old, that I leave it in cases of threatened convulsions with the greatest certainty that it will prevent their occurrence; and in families in my practice

where there is a tendency to convulsions during childhood the remedy is kept constantly on hand. To prevent the recurrence of convulsions there is probably no better remedy than the Bromide of Ammonium, administered in the usual doses. Just as soon, however, as the first convulsion has passed off, we endeavor to learn its cause, so that by its removal we may avoid any danger of its recurrence. Thus, if from crude ingesta, we give an emetic; if from irritation of the bowels, we use the appropriate means to relieve it; and if from arrested secretions, these should be re-established.

TETANUS.

Tetanus, or *lock-jaw*, is the most fearful of the diseases of the nervous system, not only from its intractability to medicine, but from the severe and continued suffering that attends it. It most usually arises from injury, though in some cases it is idiopathic. The smallest injury is as likely to cause the disease as the largest; and it is more frequent, the further the injury is from the spinal cord. Small, punctured wounds seem to be the most dangerous, as from running a nail, thorn, piece of glass or needle, in the foot or hand. It must not be supposed that these are the only injuries followed by tetanus, as it occurs after amputations and other operations, from fractures, dislocations, and other injuries. Where idiopathic, it seems to be partially dependent upon a vitiation of the blood, and partly upon an extremely excitable condition of the spinal cord. We do not know why a distant irritation, as of a wound of the foot, for instance, should produce an irritation of the spinal cord, and dissection does not assist the explanation. But that there is an extreme erethism and excitement of the true spinal cord, prolonged until all vitality is exhausted, can not be doubted. This excitement and its effects are produced by poisonous doses of Strychnia, and yet, though the convulsion may continue for hours or days, there is no evidence of physical lesion.

Symptoms.—When tetanus results from injury, a week or more frequently intervenes between the occurrence of the accident and the attack. During this time there is no evidence of the disturbance, and the wound frequently heals up kindly

previous to the commencement of the disease. In some cases there will be a sense of soreness and stiffness, extending from the injured part up to the spinal cord, and more or less of it may be felt in the back. The approach of the disease is manifested by a stiffness of the muscles of the neck, and of the mouth and throat; these increasing, he finds it impossible to turn his head without turning the body, and he can not open the mouth or swallow without pain. Soon the disease develops itself in the form of an excessive aching contraction of various groups of muscles, the pain seeming to shoot through the body to the part affected; and these are accompanied with a sensation of almost unendurable tension and pressure. This lasts for a few minutes, and then gradually ceases, but we find by examination there is still an unnatural rigidity and stiffness of the body, it not being relaxed after the spasm has passed off, as in other convulsive affections. The intervals of rest may at first be one or two hours, but they are gradually decreased, until at last there is but a minute or two, or they succeed each other like so many electric shocks. The breathing is quick and laborious, and the pulse, though calm and less hurried, small and irregular. The face is sometimes pale, but oftener flushed; the whole countenance evinces the most marked signs of deep distress, and swallowing is pertinaciously abstained from, as accompanied with great difficulty, and often producing a sudden renewal of the paroxysms. The last stage of the disease is truly pitiable, the spasms return every minute, and scarcely allow a moment's remission. In some cases the posterior muscles are principally involved, and in the latter stage of the disease the spine will be so recurved that the patient will rest on his head and heels In some cases the spasms become so severe that it is with the greatest difficulty the patient can be kept in bed; and cases are reported in which fracture of the bones occurred from the intense muscular contraction. The muscles of the inferior maxillary are so involved that the mouth is frequently opened and closed with great force, and the tongue, being protruded by spasmodic action, is often horribly mangled and bruised. The countenance is very markedly changed, the eyes being watery and fixed, the nostrils drawn upwards, and the cheeks backward to the ears, giving rise to that peculiar expression termed *risus sardonicus*. These symptoms continuing, gradu-

erally exhaust the patient, or a general convulsion occurs and he suddenly sinks under it.

DIAGNOSIS.—Stiffness of the muscles of the neck, and of the jaw, with difficult deglutition, should always occasion alarm, when unaccompanied with disease of the throat, or cold, and especially when occurring after an injury. Proper treatment at this time, I am satisfied, will avert the disease, and hence the importance of recognizing the symptoms. When the disease is fully devoloped, the symptoms can not be mistaken; the continued recurrence of painful spasms, the rigidity of the body, with perfect consciousness, are symptoms that do not occur in any other affection.

PROGNOSIS.—This is undoubtedly one of the most fatal diseases we are called to treat, and though some may recover, a large majority will die. If taken at the commencement we may, as before remarked, control the disease, but after it has become severe, the most we can hope for is, to modify the convulsive action, and support the strength of the patient, so that it may wear itself out.

POST-MORTEM EXAMINATION.—Various lesions are observed, the result of the long-continued and excessive muscular contraction, and the consequent derangement of the circulation, but they bear no relation to the disease other than as effects. On examination of the spinal cord and base of the brain, the membranes and even the nervous tissue are found injected, and there is also evidence in the deposit of coagulable lymph, of a low form of inflammation. In some cases these appearances are well marked, but in others very obscure.

TREATMENT.—If called to a case presenting the forming symptoms of tetanus, I should immediately give an emetic of the Compound Powder of Lobelia and Capsicum. Its action should be thorough, and continued until it produces complete relaxation, and perspiration. This should be followed by Tincture of Gelseminum, in doses of from twenty drops to one fluid drachm, every hour or two, or sufficiently often to control the symptoms. The bowels may be moved by the Compound Podophyllin pill, if deemed necessary; and if the patient is sleepless, a sufficient dose of Choral or Sulphate of

Morphia, may be given to produce sleep; it will generally require twenty five grains of the first, and from half to one grain of the second. I am satisfied that if any treatment will prove successful, this will, and if any one agent is more to be relied on than another, it is the Gelseminum.

If the tetanus is the result of a wound or injury, it sometimes becomes necessary to make use of local applications. As a general rule, if it has been a punctured wound, as from a nail, thorn or piece of glass, and has closed up on the outside, it should be opened, and syringed with a saturated solution of Sesqui-carbonate of Potash; if irritable and tender to the touch, secreting a sanious pus, it should be freely cauterized with Chloride of Zinc, and a soothing poultice, as of Poppy-heads or Stramonium, applied. Whatever will quiet irritation most speedily should be applied. In some cases, the injury being severe, amputation has been resorted to with reported success, but I am inclined to doubt it, as all the cases that have come to my knowledge have died.

When the disease is fully established, we may attempt to control the symptoms by the treatment above named, and if the case is mild it may succeed. If it does not arrest the spasms, or increase the interval between them, it should not be continued longer than twelve to twenty-four hours. Cups to the spine have been used with advantage, and if there was great difficulty of breathing from spasm of the diaphragm, they might be applied entirely around the margin of the false ribs. Choral and Chloroform seem now to be our principal remedies, as they give ease when all others fail. Opium may be given in doses of five grains, or Sulphate of Morphia in doses of one grain. Chloroform, however, answers a better purpose; as by its continued use we can control the spasm and pain. Anæsthesia need not be deep, but should be so continuous as to prevent a return of the convulsion.

The Woorara, used as a hypodermic injection, has been recommended as an antidote, and though successful cases were reported, it is now believed to be entirely inefficient. Nicotine has been used in Dublin with more marked success than has attended any other agent, and I will certainly try it, should I be so unfortunate as to have another case. It is given in doses of one drop in wine, and repeated as often as may be necessary to control the convulsion, and if need be, the dose is

increased to two drops, or if rejected by the stomach, it may be used as an enema. Cases are reported in which it is manifest that the remedy exerts a marked controlling power over the disease, which may be rendered curative with proper care.

It must not be forgotten that the patient needs sustenance through this prolonged muscular action and pain. It should be given in the form of rich animal broths and milk, with a sufficient amount of brandy. If it can not be taken by the mouth on account of convulsive action, it should be used as an enema.

HYDROPHOBIA.

Rabies is a disease of great antiquity, and has been described by most writers on Medicine from the earliest ages. It has its origin in the canine and feline animals, but may be propagated to all genera and species.

How the disease originates, or what is the character of the poison, is beyond our knowledge. Some contend that from its commencement it has been propagated by contagion, while others reason that the causes which produced the first case, may be again set in action, and reproduce the disease. These suppose that protracted thirst or hunger, extreme heat, violent excitement or anger, the sexual heat, etc., variously associated, will develop the malady independently of contagion.

When once developed, it is transmitted from one animal to another and to the human family, by a specific animal poison found in the saliva, and which is usually introduced into the blood, through a wound made by the teeth; though, like all other animal poisons, all that is necessary is, that it shall be brought in contact with an abraded surface.

As regards the physical properties or character of this poison, nothing is known, and neither has it been determined what part secretes the poison, further than that it is furnished by the glands connected with the mouth. Some writers contend that it is not a disease of the blood, and urge as evidence the long period that sometimes elapses from the inoculation before the disease is developed.

They therefore urge that it must be the nervous system that is affected, the phenomena being those of a nervous malady of the most intense form.

As regards the pathology of the disease, we may assume that the poison of rabies absorbed into the system, gives rise to a peculiar irritation of the nervous system, more especially marked in the true spinal system. The symptoms all point to the medulla oblongata and spinal cord as the seat of the disease, and the post-mortem examination shows these parts to have been subject to severe irritation and vascular excitement.

The appearance of hydrophobia in the dog is indicated by a change in his disposition, usually exhibiting a marked antipathy to other animals, and rarely becoming attached to those to whom he was formerly indifferent. He seems also to have changed his habits, picking up straws, rags or any small objects, and licking cold surfaces, as stone, iron, etc. He becomes morose and sullen in his disposition, becomes lonely, has a haggard and suspicious look, and is constantly thirsty; respiration soon becomes difficult, and saliva flows from the mouth, and forms a viscid foam, and he shows great irritability and a disposition to snap at and bite other animals, though he may still obey the voice of his master. At last he becomes uncontrollable, and flies at every creature he meets, and having no fear, he is not intimidated by holding or striking at him with a whip or stick, but is rendered more savage. At no period is there any dread of water, but the animal still exhibits strong evidences of thirst, and runs to it with avidity, and all other animals, with sometimes the exception of the horse, drink with ease. The disease having continued for several days, the animal is at length exhausted, and dies in convulsions.

SYMPTOMS.—The period of incubation is seldom shorter than from thirty to forty days, or may be postponed from one to two years. The wound seems to heal as kindly as it does in other cases, and usually no unpleasant sensation is experienced in it. Sometimes there is a feeling of constriction in the cicatrix, or slight shooting pain, but we are inclined to attribute this, as well as the quick pulse and constitutional symptoms sometimes met with, to the effect on the mind of the patient, rather than to the influence of the poison.

The invasion of the disease is usually marked by a recurrence of pain at the seat of the injury, which shoots upwards in the course of the nerves, occasionally to the epigastrium or præcordia. Not only is there pain, but the cicatrix becomes

of a dark livid red, is irritable, tumid, and sometimes surrounded by small phlyctenulæ, containing a bluish fluid, or in rare cases the cicatrix opens and discharges a watery or ichorous fluid. The patient is now very anxious and restless, and complains of drowsiness, chilliness, flushes of heat, and sense of constriction of the throat, and stiffness of the parts concerned in deglutition. The act of swallowing, especially fluids, is now attended with pain and distress, and by spasmodic action of the muscles engaged, so that frequently they are forcibly ejected from the mouth. The difficulty of swallowing rapidly increases, and the patient fears to make the attempt, and the sight of fluids occasions the most distressing spasms of the throat, followed by sobbing, tremor, forcible respiration and exhaustion.

The sufferings now become intense; the mouth is dry, parched and clammy, a frothy saliva being secreted, and occasionally forcibly expelled during the paroxysms; the thirst is intense, though the sufferer is not only unable to take fluids, but the sight or sound of them gives rise to uncontrollable convulsions; the countenance is haggard and anxious, the brow contracted, the eyes staring and wild and startling in their expression, and the angles of the mouth retracted; respiration is hurried, laborious, and attended with dryness and constriction of the air passages; and the sensibility becomes so exalted that the slightest touch, or a breath of cold air striking the surface of the body, will occasion a paroxysm.

The mind of the sufferer is usually clear in the absence of the paroxysms, but when they are on, he has the rabid impulse of biting or tearing to pieces whatever comes in his way. These symptoms continuing, the patient becomes gradually exhausted, the pulse becomes small and feeble, respiration hurried and difficult, and he dies suddenly during a violent exacerbation. The attack may last from two days to a week, or in some rare cases, the symptoms become ameliorated, and quietly wear themselves out in the course of two, three or four weeks. In these last cases, the patient rarely recovers completely, but has occasional slight returns of the original symptoms.

DIAGNOSIS.—Usually we have to take the patient's word as regards the rabidity of the animal inflicting the wound, when

he applies for advice a short time after the accident. It is a good rule in these cases to always treat it as if it were the bite of a rabid animal, if the patient believes it, or if the evidence is in any respect in favor of that opinion. When the disease has fully developed itself, there is no mistaking its character; the difficulty in deglution, spasms of the throat, increased by attempting to swallow fluids, and the peculiarly wild and anxious appearance of the countenance, are sufficient.

PROGNOSIS.—The prognosis is extremely unfavorable, but very few cases recovering.

POST-MORTEM EXAMINATION.—The fauces, pharynx and œsophagus are usually found to be injected and reddened, and covered to a greater or less extent with lymph. The mucous membrane of the respiratory apparatus is affected in the same manner, showing evidence of determination of blood, though in this case the blood is dark-colored; the lungs are usually congested, and more or less frothy mucus is found in the bronchial tubes. The vessels of the brain and spinal cord are generally congested,and the sinuses especially are filled with black blood; there is also, in many cases, effusion into the ventricles and sometimes into the cavity of the arachnoid. The condition of the spinal cord varies in different cases, but in all it manifests serious lesions, as we should suspect from the symptoms observed during life.

TREATMENT.—Immediately on receipt of the injury, it is recomended to wash the wound or wipe it dry, and suck it with the mouth for five or ten minutes. Or the part may be immediately excised, or a ligature applied between it and the trunk, if of one of the extremities, to prevent the poison from gaining entrance into the system; this will be done before a physician can be seen. When the case presents itself to us, we may excise the part bitten, or apply a cup to it, draining it well, or we may cauterize it freely. I prefer the latter practice, and use a saturated solution of Chloride of Zinc, bringing it in contact with the whole abraded surface. A deep eschar is formed, which does not slough for several days, and when thrown off, the wound suppurates freely. Three cases were thus treated by me in 1857, which had been bitten by a dog that

communicated the poison to several animals which died of hydrophobia; the cauterization was very thorough and deep, and not more than half an hour after the injury; not one of the cases had any symptoms of the disease. A fourth case occurred in 1859, and a fifth in 1862, which were treated in the same manner and with the same result, but in neither of these was the evidence positive that the dog inflicting the bite was rabid. No internal medicines were used in any case.

We must not conclude that all persons who are bitten by an animal known to be rabid will have hydrophobia, as experience has demonstrated that the reverse is the fact. Many times the bite is inflicted through the clothing, and the poisonous virus is likely to be rubbed off the teeth of the animal as they pass through. In other cases the flow of blood is so free as to wash the poison out. Thus Mr. J. Hunter gives a case in which twenty persons were bitten by the same dog, and but one was affected by the disease. And Bennett states that at Saulis a dog bit fifteen persons, three of whom died of hydrophobia. M. Trollet reports seventeen bitten by a wolf, with ten deaths, and twenty-three by a she wolf, with thirteen deaths, and in most of these precautions were used to prevent infection.

When hydrophobia is fully developed, we are at a loss how to treat the patient; some writers have recommended the employment of Lobelia to keep up continuous nausea; others to give Scutellaria in infusion in as large doses as the patient can bear; and others the narcotics, as the Cannabis Indica, Belladonna, Stramonium, Hydrocyanic Acid, etc. Each has been employed thoroughly, and though they may have so mitigated the symptoms, as to have led the attendant to suppose that under more favorable circumstances they would have been followed by success, yet we have no evidence that a single case has been cured. Evacuants have not only failed to accomplish any good result, but have undoubtedly hastened death. The Anagallis Purpura has been highly extolled, and cases reported cured, but we are not told whether it was used as a prophylactic previous to the full development of the disease, or afterward, and as will be noticed, very much depends upon this. If I had to adopt a treatment in these cases, it would be the continuous hot bath, Quinia in large doses, and Chloroform by inhalation.

DELIRIUM TREMENS.

Delirium tremens, in a very large majority of cases, is the result of intemperance in the use of intoxicating liquors, and usually follows a protracted debauch. It may be produced by the habitual use of Opium, and in rare cases it may result from excessive emotional excitement in persons of feeble health. As a general rule it occurs in persons who are habitually intemperate, though they may never have been so intoxicated as to attract much attention. In some cases delirium tremens is not the result of excessive excitement, but makes its appearance when the person has ceased to drink, either from inability of the stomach to receive it, or because they desire to sober up. Hence it is the result of the withdrawal of the stimulant at a time when the system is accustomed to its use. In other cases it comes on while the person is still drinking to excess. There is therefore a delirium of drunkenness following the debauch immediately, and another that makes its appearance in from two to seven days afterwards. This accounts for the great difference in the treatment of the disease by different writers.

SYMPTOMS.—In the first case, the person has ceased to drink, and the excitement of the nervous system is dependent upon the withdrawal of the stimulant. It may commence as early as the second day, or at any time during the week after ceasing the use of stimulants.

The symptoms are those of prostration. We find that there is great irritation of the stomach, frequently thirst, sometimes nausea, and in all cases an entire loss of appetite, the patient having usually taken but little if any food for several days. The pulse is generally slow, and the hands and feet are cold and clammy; he is anxious and dejected, sighs frequently, and complains of oppression about the præcordia. These symptoms continue sometimes for two or three days, at others for but a few hours. The restlessness and vigilance of the patient are now increased, and the countenance has a peculiarly wild expression; mental delusions now occur, at first at intervals, and easily displaced by reasoning with him, but at last becoming fixed and constant, he sees curious shapes and

beings, snakes, devils, dragons, assassins, etc., and is in continual fear of his life, or of future retribution.

It is singular that these visions are so generally frightful, and strike the poor sufferer with mortal terror, and yet the cases are very rare where it is otherwise. He sees them on his bed, peeping and laughing at him from behind the furniture, grasping at him from the air, climbing on his body, and it is impossible to displace these fancies. Occasionally they take human shapes, but are still objects of terror, as murderers, thieves, etc., and he tries various means to escape from their clutches, even in some cases to jumping out of the window.

The intensity of this delirium varies in different cases, the patient being managed with ease in some, but in others requiring to be held down in bed to prevent him from injuring himself and others. During this time the skin is harsh and dry, the pulse frequent and small, the tongue dry and furred, and the appetite entirely lost. The secretions are all diminished, the patient is feeble, and there is an unnatural tremor of the muscles. Continuing in this way for a variable period, it may terminate by a subsidence of the excitement, and by a deep sleep, from which the patient awakes free from these morbid fancies. In other cases the delirium becomes more and more severe, until finally the system sinks under it, the patient dying from the fourth to the twelfth day.

In the second case the delirium comes on as a termination of the spree, the person continuing to drink even after the attack has commenced. In some the drunkenness assumes a violent form, the patient being furious, vicious and controlled with difficulty. When we examine the case we find the face flushed, the eyes bright, the pupils contracted, the pulse hard, and the patient irritable and with difficulty controlled. The evidence of delirium tremens is the same as above noted, for in all cases the phantoms are frightful. In this, however, the patient does not suffer quietly but manifests a disposition to resist and combat the evil shapes. At last, when the hallucinations are continuous, the patient is in a constant state of furious excitement, which continues until the nervous system gives way and death results.

DIAGNOSIS.—The previous history of the person, the marked uneasiness and restlessness of his manner, and the peculiar

wildness of his countenance, and constant watchfulness, will determine the nature of the disease at the commencement. In a more advanced stage the symptoms can not be mistaken by the most casual observer.

PROGNOSIS.—The prognosis is generally favorable, except in cases in which the system has been greatly shattered by long-continued intemperance. It is, however, many times, a very dangerous disease, and requires great care in its management. We may look for a fatal termination, if the watchfulness increases for two or three days and the illusions are constant and keep the patient in a state of continual terror and excitement, the pulse being quick and feeble. But if the watchfulness and illusions gradually become less, with symptoms of drowsiness, the case will terminate favorably.

POST-MORTEM EXAMINATION.—The lesions resulting from intemperance are many and of varying character. The digestive apparatus seems to suffer first and to the greatest extent; thus we find the mucous membrane of the stomach thickened, of a red or reddish-brown color, sometimes like mahogany, and covered with a dark, flaky material; sometimes it seems just on the verge of mortification. The mucous membrane of the small and large intestines is not unfrequently affected in a similar manner, though not to so great an extent. The liver is often enlarged, and of a yellow or fawn color, granulated or showing evidences of fatty degeneration. The nervous centers do not always exhibit sufficient change to account for the symptoms; frequently there being nothing more than slight opacity of the arachnoid, injection of the pia mater, and increase of the puncta vasculosa, when the brain is affected. Occasionally there is an increased amount of fluid in the ventricles, injection of the membranes, with more or less deposit of coagulable lymph.

TREATMENT.—From the description as given above, it will be seen that the treatment of the two classes of cases will not only be different, but opposite. It is this difference in the pathology of the disease that has given such latitude of treatment, and such a wide difference between writers. It is this difference, also, that has probably rendered treatment so frequently unsuccessful.

In the first case the treatment will be stimulant, tonic and restorative. If a person applies to us, as is frequently the case, for something to relieve the excitement of the nervous system, and prevent delirium tremens that follows quitting drink, we would employ this class of remedies. I have usually prescribed the Iodine Pill:

℞ Iodine.
Extract of Nux Vomica, aa. gr. vi.
Hydrastine, grs. xxx. M.

Make thirty pills, and give one every three hours. I have employed it with much satisfaction, and if used in time, will allow a man to "sober up," without danger. In place of this, we may use the Compound Tonic Mixture, or a combination of Quinine, Strychnine and Iron, in powder.

Dr. Chevalier claimed that the real specific for intoxication is Acetate of Ammonia, exhibited in the form recommended by Mazuyer, two or two and a half grains dissolved in five ounces of sugared water, to be taken at one dose.

When called to treat a case of this kind, in the early stage, I put the patient upon the use of Aconite and Belladonna in small doses, alternated with small doses of Tincture of Nux Vomica. Or, in place of this, teaspoonful doses of Tincture of Capsicum, repeated every two or three hours.

A good beef-tea is prepared, and administered every one or two hours as regularly as we would give medicine. In some cases, a small amount of good brandy or whisky might be given, or stimulant doses of opium, but as a general rule, I prefer the means first named. We may, however, obtain better results from the aromatic tinctures, as of Lavender, Cardamom, etc., with Camphorated Tincture of Opium.

In an advanced stage of the disease, I pursue mostly the same course, but employ enemas of beef-tea and brandy. The condition of the stomach interests us more than any other feature of the disease, as the result will depend quite as much upon giving food, as obtaining sleep. When the mucous membrane is dark-red, the tongue frequently parched and brown, I direct acid drinks and acid beef-tea—Muriatic Acid being preferred. In some cases, the tongue is pallid, and the mouth moist and clammy, when a salt of soda will be indicated—the sulphite is preferred, or if there is nausea, with retching, a solution of common salt.

Capsicum has been recommended latterly, and quite a num

ber of cases reported, in which it effected cures. It is administered in large doses, from a scruple to a drachm, in a glass of spirits and water, every three or four hours.

It is rarely that we obtain any benefit from the bitter tonics or restoratives at this stage of the disease, though they may be employed during convalescence. The simple means first named, with the stimulant, will be found to yield better results.

Occasionally we may give temporary relief, by the use of·

℞ Chloroform, gtts xx.
Tincture of Hyoscyamus, ʒij.
Brandy, ʒss. M.

For a dose, and repeated every two or three hours. When the disease has progressed so far, that the patient must have rest or die, I employ Chloroform by inhalation, not to the extent of profound anæsthesia, but quiet. Then use a hypodermic injection of Morphia, gtts. xxx, of the usual solution, to produce sleep. If care is used, there is no danger in this, but if, after using the Morphia, the Chloroform is continued in full quantity, it may prove fatal.

In the second class of cases, when the delirium tremens is developed whilst the patient is still drinking, presenting the evidences of vascular as well as nervous excitement, I would advise an opposite course to the above. I usually prescribe:

℞ Tincture of Veratrum, ʒj.
Tincture of Gelseminum, ʒss.
Water, ʒiijss. M.

A teaspoonful every half hour. As the influence of Veratrum is obtained, it is given every hour, and finally the dose is diminished.

As soon as the patient is fully under the influence of the sedative, Opium may be given in a full narcotic dose. Or if the case is a very severe one, we may use Chloroform to partial anæsthesia, and a hypodermic injection of Morphia.

Tincture of Digitalis in doses of ʒij. to ʒss. has been highly extolled, and I have no doubt has answered a good purpose. Yet I would prefer the Veratrum as the safest as well as the most certain remedy.

The warm bath is usually very efficient, and I have known patients to go to sleep in the bath, who had been beyond all control, except by force; it may be associated with the other means named. If there is nausea, and especially if the reme-

dies given are thrown up, an emetic should be administered, and the stomach thoroughly evacuated. In some cases it is well to evacuate the bowels with the Compound Podophyllin Pill, and the secretion of the skin may be started by the administration of Tincture of Asclepias, with Carbonate of Ammonia. I have cured cases of delirium tremens with the warm bath, Podophyllin Pill, and Asclepias and Carbonate of Ammonia, when Opium and stimulants had failed.

CHOREA.

(See Diseases of Children, pp. 386–391.)

HYSTERIA.

(See Diseases of Women.)

HYPOCHONDRIASIS.

Among the most troublesome cases that come under the physician's care, are those which may be classed under the present head, and though they may vary greatly in their symptoms, there is that common to all, which gives them a distinctive character.

Copland's definition is, "Chronic indigestion, with languor, flatulency, dejection of mind and fear, arising from inadequate causes; general exaltation of sensibility, a rapid succession of morbid phenomena, simulating numerous diseases, or otherwise a real but variable state of suffering, exaggerated by the morbid sensibility and fears of the patient, with unsteadiness or variability of purpose, and distressing anxiety respecting his complaints." This, in a few words, expresses a condition in which, in addition to a variable amount of physical disease, we have a marked lesion of innervation, and to some extent of the mind. Some authorities class it with insanity, and there are cases sometimes grouped under this head, in which the patient imagines himself a tea-pot, or a locomotive, or that his body has so increased in size that he can not get through the door, or has a morbid dread of thieves, assassins, etc., which properly belong to that class.

The causes of hypochondriasis are various. Sometimes a

disposition to it seems to be hereditary, making its appearance after middle age from slight exciting causes. It usually results from prolonged mental exertion, or letting the mind dwell constantly on one subject, and especially in persons of sedentary habits.

"Whatever exhausts, or directly depresses cerebral power, as intense application of the mind to difficult or abstract subjects, anxieties respecting schemes, speculations, or objects of ambition; disappointments, sorrow, fright, or sudden alarm; the depraving passions, severe losses of fortune, or friends, indulgence of sombre or sad feelings; devotion to music and the fine arts, reading medical books, etc., and whatever favors congestion of the brain, may cause the complaint" (Copland.)

SYMPTOMS.—In a majority of cases we find considerable derangement of the digestive organs; the tongue is coated at the base, there is clamminess and bad taste in the mouth in the morning, digestion is attended with flatulence and eructations, and the bowels are constipated. The secretions are deranged; the skin being dry and harsh, or soft, pale and relaxed, with feeble circulation and coldness; the urine is usually copious but deposits the lithates or phosphates. There is marked hyperæsthesia in many cases, the sensibility being so exalted, that the slightest suffering is magnified into intense pain, and there is constant suffering from wandering pains in various parts of the body.

Occasionally the patient seems dull and impassive, brooding over his troubles and diseases, and seems to feel no acute suffering, and is with great difficulty aroused so as to describe his imaginary diseases, answering, that he knows them to be such as are incurable by medicine, and therefore it is useless to describe them. In the one case the patient is always complaining, and evidences of suffering are well marked; in the other it is very evident that the patient is diseased, but he is wrapped up in himself, and constantly brooding over his diseases, rather than complaining about them.

In many cases the patient, notwithstanding the severe character of the symptoms, presents all the appearances of sound health. "He often complains of violent pains in the temples, forehead, or occiput, or of a general headache, with dimness of sight, and noises in the ears, or of a sense of weight or

pressure, more intolerable than pain, at the vertex, with giddiness or confusion of mind; and sometimes of a constriction or lightness of the head or temples, or of a morbid sensibility of the scalp and roots of the hair. Occasionally the senses are morbidly acute, and intolerant of light and noise. Pains resembling rheumatism, or those of syphilis, are felt in various situations, occasionally with a feeling of burning or heat, and sometimes of coldness, horripilations, cramps, feebleness, or threatened paralysis of one or other of the extremities. Weakness of the limbs, unsteadiness in walking, or feebleness of the joints (in some instances with neuralgic pains) and great susceptibility to cold and heat, are not unfrequently complained of. The morbid sensibility of the hypochondriac is generally increased by a cold and humid state of the atmosphere, by easterly winds, and by very warm seasons. His mind is incapable of exertion or prolonged attention, although when aroused, he may be lively and acute; but he soon becomes engaged in his own feelings and sufferings. To these he frequently recurs in conversation, whenever he has an opportunity of doing so, although he seems to suspect that the subject is unpleasant to those who listen to him, and therefore suppresses a part of his complainings. In some cases there is dyspnœa, constriction of the chest, with a dry, short, or spasmodic cough, and occasionally a sense of suffocation or constriction is felt in the throat, with flatulence and various other symptoms resembling those attendant on hysteria. These phenomena have induced several writers to consider the disease closely allied to hysteria, and the severe palpitations, or irregular action of the heart, frequently also complained of, have further countenanced the idea; while they have excited the anxiety of the patient and induced him to believe himself the subject of irremediable disease of the heart; sleep is sometimes materially disturbed, and occasionally the hour of repose is ardently looked for; but in other cases it is dreaded as aggravating the distress The patient is often tortured with the most distressing feelings, which are greatly aggravated by his fears. He dreads impending dissolution, from the symptoms referred to the head, heart or chest. His ideas are concentrated on himself and his feelings, and he is incapable of attention or mental exertion, unless by circumstances of unusual interest or moment. Occasionally vertigo, dimness of vision,

and intolerance of light and noise, are so great as to justify his fears; and the pains in the head, or the sensation of pressure on the head and temples, are so severe, that the eyes seem starting from their sockets." (Copland.)

DIAGNOSIS.—The diagnosis requires considerable care, as all of the symptoms named as occurring in hypochondriasis may be occasioned by real diseases. Our suspicions are generally excited by the expressions of severe suffering in slight disorders, and by the little constitutional disturbance occasioned by the grave affections that the patient would seem to have. A close examination will detect that the diseases complained of do not exist at all, or if they do, in a form that would not give rise to the symptoms complained of. This is especially the case as regards diseases of those organs that may be examined physically, as the heart, lungs, etc. And in other cases the diagnosis is confirmed by the frequent shifting of the disease from one part to another, and the speedy disappearance of what had seemed to be structural disease.

PROGNOSIS.—In the early stages of hypochondriasis we may give a favorable prognosis, as in a very large majority of cases, proper medication, if we can gain the confidence of the patient, will be attended by a speedy cure. In cases, however, which have lasted for years, we will be guarded in our opinion, as many of them can not be relieved, and the patient's confidence is best gained by holding out inducements of cure, as he seems to gain under the treatment.

TREATMENT.—It is necessary that we carefully analyze the symptoms of the case, and determine, as near as possible, the exact nature of the functional lesions present, and their extent, and proceed to remove them seriatim. In many cases, we will give attention first to the digestive organs, removing torpidity of the stomach, increasing the power of digestion, and overcoming constipation. An emetic administered once or twice a week until the coating no longer forms on the tongue, and the bad taste of the mouth and fetid breath disappear, is sometimes attended with the most marked beneficial results. The Compound Power of Lobelia and Capsicum in infusion will be the best remedy for the purpose, and should be so used as to thoroughly evacuate the stomach. It is especially indicated

in cases where the tongue is coated at the base, with a bad taste in the mouth, slight nausea, and fetid breath. It may be followed by a purgative, as,

℞ Podophyllin, gr. x.
Aloes, ʒj
Extract of Nux Vomica, gr. v.
Hydrastin, ʒss.
Extract of Hyoscyamus, q. s. M.

Make forty pills, of which one may be given two or three times a day, so as to open the bowels once or twice daily. An alkaline diuretic, as the Acetate or Citrate of Potash, and the daily use of the salt bath, with brisk friction, will sometimes complete the treatment. Very frequently a succession of tonics, stimulants and chalybeates will be required, for one will lose its effect in a few days or weeks, and will have to be replaced by a new one. Keeping the secretions free, is only next in importance to maintaining the digestive organs in proper condition; and we will here derive marked benefit from remedies directed to the kidneys, and from the use of various baths as may be indicated by the condition of the patient. I have seen most marked advantage result from the use of the warm bath followed by cold affusion and brisk friction, and in some cases from cold affusion alone, or directed principally to the spine. Occasionally when the skin is relaxed and flabby, much benefit is derived from the tonic and astringent baths heretofore named.

In those cases attended with symptoms of heart disease, but without structural change, and which undoubtedly originate from derangement of the stomach, we will find no better agent than the Collinsonia. I have frequently associated it as follows:

℞ Tincture of Collinsonia,
Tincture of Asarum, aa. ʒij.
Simple Syrup, ʒiv. M.

Give in teaspoonful doses every four hours. We may occasionally add to it the Tincture of Xanthoxylum, or the Tincture of Nux Vomica. The Prussiate of Potash will sometimes prove beneficial in this case, in doses of from three to five grains four times a day. If there is difficulty of breathing feeling of oppression, with a dry, hacking, troublesome cough, and especially if it causes restlessness at night, I prefer the Tincture of Drosera, in the proportion of fʒj. to Water, ʒiv., in doses of a teaspoonful four or five times a day. The Tinc-

ture of Verbascum will likewise prove efficient in these cases. If there is troublesome pain in the head with dizziness, and feeling of tension, in addition to the Acetate or Citrate of Potash, which are sometimes sufficient, we may give the Tincture of Jeffersonia in doses of a teaspoonful every three or four hours, and may expect marked benefit from its use. If there is urinary deposit, this should be examined by the microscope, and its character determined and the treatment necessary in the case adopted.

It is very essential that we shall obtain the confidence of our patient, inasmuch as it enables him to rid himself of much of the burthen of watching his symptoms, and of taking those precautions to ward off disease, that have hitherto occupied so considerable a part of his attention. The mind thus relieved may be directed to other objects, and in a short time will get into a new channel, much to the patient's benefit. If the patient's confidence is not gained, no good will result from any treatment; change of scene is often advisable, and traveling is frequently productive of great benefit. Watering places may be recommended, if, from the character of the patient, we think he will enter into the amusements of the place; if not, continuous traveling is better. Dr. Gully remarks, "that the mental distractions accompanying the participation in exciting social scenes, the vigorous exertions of the voluntary power employed in strong muscular exercise, and the shocks given to the entire nervous system, are always beneficial in this complaint. The hypochondriac should be persuaded to the exertion of his volition in active muscular exercise; he does not lack muscular power, but he wants the mental energy necessary to its exertion. He should always ride or walk before his meals, rise early, and take half an hour's exercise in the open air before breakfast. His mental faculties, also, should be entirely engaged on matters alien to his personal health. His imagination should be aroused and directed to other subjects."

NEURALGIA.

Neuralgia should be considered as a morbid exaltation of the sensibility of nerves, sometimes the result of determination of blood, but more frequently without perceptible change. We have already noticed some of these affections, and may

group the remainder together in this article. It may attack any portion of the body, and runs in the course of the sensitive nerves, some parts seeming to be more susceptible than others. The predisposing causes are such as enfeeble the body, and cause excitation of the nervous system; the most frequent exciting causes are damp and cold, though it may result from excessive emotional excitement, and as we have already noticed, from malaria. It is not confined to external parts, but may affect any of the internal organs, being most generally associated with slight structural disease.

PATHOLOGY.—In this, as well as some other affections of the nervous system, the pathology has been very obscure. I believe it has been clearly proven, however, that pain may result equally from an exalted and a depressed condition of the nervous system. If this is so, we may conclude that neuralgia, which is but an intense pain, arises also in two very different nervous conditions.

The symptoms of the disease bear out this view of the case. In one the part is pallid and cool, the face is pale and expressionless, the eyes dull, with dark lines below them, dilated pupil, the pulse small and soft, and the extremities cold. In the other the part is flushed, sensitive to touch, the countenance is flushed, the eyes bright, pupils contracted, pulse strong, skin dry, and increased temperature of the body.

Evidently neuralgia presents us a double lesion, first of the part where the pain is experienced, and second of the sensory portions of the brain where the impression is made.

In some cases it is wholly local, and due to a local lesion of the terminal extremities of a nerve, or to its trunk. In others, the principal lesion is of the brain, which gives it greater sensibility to impression. Whatever might be the condition of the nerve of a part, if the brain did not receive the impression, we would not be conscious of pain.

SYMPTOMS.—Neuralgia is sometimes preceded by a sensation of formication, or numbness, and sometimes by soreness and stiffness. The pain usually comes on gradually, is at first obtuse and aching, but as it continues becomes sharp, lancinating, darting and lacerating. Sometimes it seems to be confined to the one spot, but at others it shoots along the course of the

nerve, either in the direction of the trunk, or the extremities, or seems to dart through the part in a direction opposite to the course of the nerves. The pain is usually very intense, so much so, sometimes, that the patient screams with the agony, and in very severe cases becomes unconscious or maniacal from the intensity of the suffering. Occasionally we notice other disturbances of the part, as twitchings and involuntary muscular movements, and derangements of function, and in rare cases seeming paralysis. The constitutional disturbance varies greatly in different cases, depending upon the severity of the disease, and its duration; in common cases, when it has continued for twenty-four hours or more, we find an excitement of the pulse, dry skin, constipated bowels, coated tongue and loss of appetite, the patient complaining that the extreme suffering has made him sick; in protracted cases, the health suffers very much, the patient becoming feeble and anæmic, and troubled with various functional derangements.

Neuralgia faciei—facial neuralgia, is one of the most common forms met with, and when persistent and severe, has received the name of *tic douloureux*. It may have its origin in irritation of the dental branches of the fifth pair of nerves, from caries of the teeth, or may result directly from cold, atmospherical vicissitudes, or the other causes named. It usually commences as a soreness in the course of the nerves, with slight twitching pain, but when fully developed, is sharp, lancinating and tearing. It may be confined to either of the branches of the fifth pair, affecting the eye and parts supplied by the first branch—or those situated over the superior maxillary bone, and supplied by the second branch—or those over the inferior maxillary, and supplied by the third branch. There are other cases in which these entire structures seem to be involved, the pain being confined to the terminal extremities of the nerve. In others again, the pain is deep seated, situated in the course of the infra-orbital nerve within the infra-orbital canal, or in the course of the mental nerve as it passes through the inferior maxillary bone, or deep seated in the superior maxillary in the course of the dental nerves.

It sometimes requires considerable care to diagnose these cases, as such pain may sometimes result from inflammatory or other diseases. We may diagnose neuralgia from structural disease of the eye by the fact that in the latter there is great

susceptibility to light, disordered vision, and constitutional disturbance. In disease of the antrum, or superior maxillary bone, simulating neuralgia, the pain is frequently tensive and throbbing, and close examination will almost invariably detect enlargement or deformity; this is the case also in disease of the inferior maxillary. It is impossible to determine the existence of disease in the course of the trunk of the fifth pair until it passes from the cranium, and of the nerves when deep seated, and we will have to be guided in great part by the evidences of constitutional disturbance.

Neuralgia of the back is not of frequent occurrence, but is sometimes very severe. The pain is lancinating and darting, and frequently extends outward in the course of the nerves passing from the spine. Thus, in the cervical region it extends to the shoulder, and frequently to the arm, and is sometimes attended with tonic contraction of muscles, producing torticollis. In the dorsal region it may be confined to the spine, but more frequently extends to the intercostal nerves, and is sometimes very severe. It is very difficult to distinguish neuralgia of the lumbar region from lumbago, and as the treatment differs but slightly, it makes but little difference.

Neuralgia of the lumbar nerves is sometimes met with, and is usually recognized by the course of the pain, as more than one branch is usually affected, and the pain is confined closely to the track of the nerve. Thus, we will find it in the course of the three cutaneous branches, as the spermatic, genito-crural, or extending downward in the course of the crural as far as the knee-joint, or even the foot. Neuralgia of the hip-joint, the pain being located in front, under the psoas, belongs to the same class.

Neuralgia of the sacral nerves is of very frequent occurrence, and is usually associated with some disease of the genito-urinary organs, or rectum, though it may be but slight. A very common place for the pain to point is near the rectum, and here it gives rise to the most exquisite suffering; at other times it seems to affect the entire perineum, or is confined to the pelvic viscera, or is located in the symphyses. Among the most troublesome and persistent forms of neuralgia is that of the hip-joint, which is associated with sacral neuralgia; the pain in this case is principally in the gluteal muscles, and those of the posterior aspect of the thigh.

Sciatic neuralgia is a very common form of the disease. It usually commences between the great trochanter and the ischium, extending downwards in the course of the nerve to the popliteal space, and in some cases along the anterior and posterior tibials to the feet. The pain is very acute, and its occurrence usually sudden, though sometimes it is preceded by painful tinglings, slight numbness, or chills and formication. It is usually remittent, the exacerbations occurring in the afternoon and evening, or sometimes several times a day, and occasionally attended with constitutional symptoms, owing to the severity of the suffering. Motion increases the pain, and sometimes brings on a violent exacerbation. In some cases, when the disease continues for a long time, or occurs frequently, the limb becomes wasted and partially paralyzed.

Neuralgia may occur in any part of the course of this nerve or its various branches. A very severe and troublesome form of it is met with in the foot, or in both feet, and is most generally associated with tuberculosis, or other cachectic affection. Neuralgia of the knee-joint is usually associated with that of the crural nerve.

Neuralgia of the upper extremities is not so common as the lower, still it may occur and is very intense. The ulnar nerve seems to be the most frequent seat, the pain being acute and darting along the main trunk. Occasionally it seems to be confined to the wrist, and the articulation of the metacarpal bone of the thumb, and at other times it affects the cutaneous nerves and the elbow joint. Chaussier states, that the ulnar or cubital nerve is the one most frequently affected, and that the pain is generally seated in that portion of the nerve situated between the olecranon and the internal tuberosity of the humerus. The temperature of the arm is increased, and in very severe fits the patient experiences much anxiety, and often holds the arm up and grasps it forcibly with the other hand.

Neuralgia of the muscles and membranous structures is not of common occurrence, and will be difficult to distinguish from rheumatism. But in true neuralgia of muscles, the pain is much more acute than in rheumatism; recurs in frequent exacerbations, and is rarely or never altogether absent in a dull or numb form. "In all the cases I have seen, the remissions were attended by weakness or partial palsy of the muscles

affected; and the complaint was symptomatic of organic lesion in either the brain or spinal cord; an apoplectic, epileptic or paralytic attack, generally occurring after longer or shorter periods. A lady from Gravesend, consulted me a few years since for neuralgic pain of the muscles of one side, and particularly of those of the shoulder and arm of that side. After many months of suffering, maniacal delirium and palsy supervened; several large tubercular formations were found in the brain after death; indeed, as Dr. Seymour has very justly insisted, these severe neuralgic pains in the muscles or limbs should always lead to suspicion of the existence of softening or other organic lesions or formations in the substance of the brain."—(Todd.)

Visceral neuralgia is a not uncommon affection, and may affect any organ. We have already noticed neuralgia of the heart, and have seen that it not only occasions the most severe suffering, but frequently terminates fatally. Neuralgia of the pleura is possibly the most common form of the visceral disease, and is marked by sharp, lancinating pain, simulating pleurisy, from which it is distinguished by the absence of constitutional disturbance. It gives rise to difficulty of breathing and cough, the same as the inflammatory disease. We have already noticed its frequent occurrence in the early stages of phthisis. Neuralgia of the stomach has been noticed heretofore, and is a very distressing form of the disease; while the different forms of colic illustrate neuralgia of the bowels. The kidneys are sometimes the seat of neuralgia; sharp, lancinating pains occurring in the loins and darting downward in the course of the ureters, and sometimes as far as the testicles. The pain is not accompanied by constitutional disturbance, and neither is there much derangement of the urinary secretion, the only means we have of making a diagnosis. Even this is unsatisfactory, as to the presence of renal calculi, and their passage through the ureter, will give rise to the same symptoms.

According to Copland, "It is extremely probable that several anomalous painful affections, occurring in paroxysms of extreme agony, which can not be referred with precision to a single part or organ, but which affect the diaphragm, stomach, heart, and their vicinity, or either of them more or less prominently, are actually instances of neuralgia of the

nerves of association, and the ramifications of them, particularly of the pneumogastric and phrenic nerves. Several of those affections have been considered as instances of angina pectoris; but, though nearly allied to that affection, they are more correctly instances of neuralgia of those nerves, the phenomena characterizing individual cases, varying with the ramifications specially affected, and with the associated affection of the ganglial nerves frequently accompanying them."

DIAGNOSIS.—Usually we have little difficulty in determining the character of the disease, though sometimes it is almost impossible. The sharp and lancinating character of the pain, darting along the course of the nerve, is more or less distinctive, and if we associate this with the almost complete absence of constitutional disturbance, and evidence of local disease, we will come to the conclusion that it is neuralgia. Pressure almost always eases the pain, instead of increasing it as in other affections, and we observe no redness and heat, and but rarely swelling, and this confined to the face, or to the leg in sciatica.

PROGNOSIS.—In recent cases the prognosis is favorable, the disease generally yielding readily to the action of proper remedies. In some cases we will not promise speedy relief, as in those cases of severe facial neuralgia, called *tic*, and in neuralgia of the back, and of some of the viscera. In some chronic cases we will have to be very guarded in our prognosis, for sometimes they are beyond the reach of remedies or even of surgical aid. It may, in severe cases, terminate in convulsions, and as we have already seen, when it was general, affecting the muscles, the brain was almost always affected.

TREATMENT.—The treatment of neuralgia should be both general and local, and contrary to the generally established practice, we find that the first is far more successful than the last. Recollecting the division we have made—neuralgia with irritation and determination of blood, an exalted condition; and neuralgia with functional impairment and enfeebled circulation, an atonic condition—we will adapt both general and local treatment to these conditions.

In the first form of the disease, the treatment, both general and local, will be sedative. In the second case it will

be stimulant. This will guide us, to a certain extent, in the selection of the remedies, otherwise the specific indications for the remedy will be the safest means of selection.

In cases with hyperæmia, the sedatives Aconite or Veratrum are a part of the treatment. The Aconite being employed when the pulse is small; the Veratrum when it is full and strong or hard. They are also very good local applications in these cases.

Gelseminum is indicated by the flushed face and bright eyes, the general headache, and also of the bright flushing of the painful part.

Rhus is indicated by the small, sharp pulse, the burning, stinging pain, and the pain in left orbit, or frontal headache.

Belladonna is used when the patient is dull and drowsy, the eyes dull, the pupils dilated, and the part dusky red.

Bryonia is the remedy for tensive pain, when the headache is right-sided, when the pulse is hard, in costal neuralgia, or where joints are involved.

Macrotys is indicated where muscular contraction increases pain, or where the pain is a cause of muscular contraction, in uterine, ovarian, or perineal neuralgias.

Nux is the remedy when the pain is associated with nausea, unpleasant sensation in the stomach and bowels, and a sallow, inexpressive mouth.

Pulsatilla is the remedy for pallid, nervous people, who feel sad and despondent.

Lycopodium will prove curative if the pain is worse between two and four in the afternoon, and the urine is red, and deposits a brick-dust sediment.

If the neuralgia is distinctly periodic, we treat it as a masked ague, giving full anti-periodic dose of Quinine in the intermissions of pain.

If there is a failure in the urinary secretion, a solution of Acetate of Potash, given largely, diluted with water, will do much toward relief.

The hypodermic injection of Morphia will give relief in either class of cases, and may sometimes be depended upon to effect a cure. As a general rule it will be better to commence with a small dose, fifteen drops of the ordinary solution (grs. x. to ʒj.), though if we know its influence on our patient we will employ enough to give relief the first application.

In an occasional case we will have a local determination of blood, and a condition approximating inflammation. In this case we would adopt the ordinary treatment for a chronic inflammation. It is in these cases that we obtain so much benefit from the irritating plaster and other suppurants. But in the majority of chronic cases we find the general health impaired, with imperfect waste and nutrition. Hence we bring to bear such means as will stimulate the skin, kidneys and bowels to increased action, expecting as the result to get increased metamorphosis of tissue. The second part of the treatment consists in the administration of the bitter tonics and restoratives, giving a good appetite, good digestion and blood making, and good nutrition. Unless there is a permanent nervous lesion this plan of treatment will prove successful.

The local applications made use of vary greatly, being sedative, stimulant, narcotic, emollient, etc., according to the whim of the prescriber. Chloroform and Aconite are probably the most efficient agents we can use when the neuralgia is superficial, as in the case of the face. I use the agents combined in equal parts, and to such an extent as to produce the peculiar numbness of the tongue, characteristic of the action of Aconite upon the system. If we desire a stimulant influence in addition, we may add an equal quantity of Oil of Sassafras and Alcohol. If a deep seated part is affected, as in case of the sciatic nerve, we will find *firing*, or the application of a hot iron to the surface in the course of the nerve, one of the best applications. The strong Ammonia Liniment applied on flannel so as to nearly blister the part is sometimes very successful. The Extract of Tobacco has been successfully used as a local application, as has also the Emplastrum Belladonnæ. The irritating plaster continued until it produces suppuration, is very good treatment in some chronic cases.

In severe cases of superficial neuralgia, and even sometimes when deep seated, we may employ Cazenave's Neuralgic Pomade, as,

℞ Chloroform, ʒiv.
Cyanide of Potassium, ʒiijss.
Axunge ʒiij.
Wax, q. s. M.

This may be thoroughly rubbed into the part, and covered with a piece of oil-cloth or bladder. If these various means fail, we may resort to hypodermic injections, the solution of

Morphia, grs. x. to Water, ℥j., being the best; from ten to twenty drops of this may be thrown into the cellular tissue of the part with a hypodermic syringe, and repeated as often as necessary. Acupuncturation is sometimes of advantage, the needles being introduced through the part in various directions, and run through the nerve, if large. Electricity will sometimes give marked relief, if passed from the peripheral extremities in the course of the nerve trunk. We may use the electro-magnetic machine for this purpose, but in general the continued galvanic current from Grove's cups will be found better.

In some cases, section of the nerve is the only feasible method of giving relief, and will sometimes be successful when all other means have failed. Of course it is only applicable where the nerve is superficial, and the pain distinctly localized, as in cases of neuralgia of the supra-orbital, infra-orbital, or terminal branches of the mental nerves. Simple incision will not answer the purpose, as the pain returns sometimes in a few hours. A section of the nerve must be removed, and as it is never renewed, there will of course be permanent paralysis of the parts supplied by it. In cases of neuralgic ulcer, having determined the most painful part, an incision so as to cut off the nervous supply will be followed by cessation of the pain and speedy healing of the ulcer.

In other instances the neuralgia depends upon disease of a distant part of the body, and will not yield until that is cured. Thus cases of facial neuralgia have been found to depend upon ulceration of the cervix uteri, hæmorrhoids, or fissure of the rectum, and though resisting all the usual remedies, has readily yielded when the primary affections were properly treated.

PARALYSIS.

Paralysis, or as it is more popularly termed palsy, is the abolition or great diminution of the voluntary motions, or of sensation, in so far as they are related to volition or consciousness. It is but a symptom of disease, and not the disease itself, as is generally imagined, and hence must be studied with reference to the lesions which produce it. It may be produced by causes arresting the production of nervous force in the brain, or its propagation from it; from those arresting

generation of nerve force in the spinal cord, or most frequently its transmission through it; and lastly, by changes in the track of a nerve that will obstruct its function, or by disease of the nerve itself. Thus we have three distinct forms: 1st. Paralysis from disease of the brain, or its envelops. 2d. Paralysis from disease of the spinal cord, or its envelops; and 3d, Paralysis from disease of the nerves, or parts adjacent to them.

"What are the causes which may give rise to paralysis? They are either an affection of the nerve or nerves, where power is destroyed in some part of their course, or a morbid state of the center in which the nerve or nerves are implanted, with which they may be less directly connected. The nervous trunks themselves may be impaired in their nutrition, the center being healthy, or they may have suffered some mechanical injury from violence or pressure; thus either they become imperfect conductors of the nervous force, or they are rendered altogether incapable of propagating it; or some portion of the center of volition is the seat of a morbid process, whereby the influence of the will on certain parts is suspended, and thus the nerves of those parts receive no impulse at all from that center, whether mental or physical, and although perfectly healthy in themselves, are incapable of taking part in voluntary acts."

"Whatever interferes materially with the conducting power of nerve-fibre, or the generating power of the nerve vesicles (gray matter) will constitute a paralyzing lesion. Thus, in the first place, poisoning of the nervous matter will operate in this way. Soak a portion of the nerve of a living animal in Chloroform, or Ether, or Opium, and it will fail to propagate the nervous force, as long as the influence of the poison lasts. In a similar way, the poison of lead in the living system may paralyze by weakening the conducting or generating power of the nervous matter. Poisons formed in the living system may operate in the same way; such as retained urinary or biliary principles, or the poison of rheumatism or gout. Secondly, any morbid process which greatly impairs the natural structure of nerve matter will paralyze. Thus, inflammation will do this; so also will atrophy, or wasting from want of sufficient supplies of nutritious matter, as when the flow of blood is lessened or cut off. The opposite conditions of hardening and of softening of nervous matter, become paralyzing lesions

for the same reason, that they greatly impair or destroy the nerve structure. Thirdly, a solution of continuity of nerve-fiber will paralyze. Cut a nerve across, and you have immediate palsy of the parts which the nerve supplies below the section. This solution of a continuity from a melting down of the fibers is, I have no doubt, the frequent cause of sudden paralysis in cases of softening, or in cases of sanguineous effusions. Fourthly, pressure on a nerve or nervous center will paralyze; of this we have many proofs as regards nerves; a nerve, for instance, included in a ligature or compressed by a tumor, is paralyzed thereby. A fracture of the skull with depressed bone will paralyze, if the brain be sufficiently compressed; an apoplectic clot on the exterior of the brain paralyzes by compression; so also a tumor in its substance. It is probably by compression that congestion paralyzes; but you will, I think, find that this can not often be regarded as a paralyzing lesion."

"I would say that the center of volition is of very great extent; it reaches from the corpora striata in the brain down the entire length of the anterior horns of the gray matter of the spinal cord, and includes the locus niger in the crus cerebri, and much of the vesicular matter of the mesocephale, and of the medulla oblongata. Disease of any part of this center is capable of producing paralysis; but as the intra-cranial portion of it exercises the greatest and most extended influence in the production of voluntary movements, so, disease of this portion gives rise to the most extended and complete paralysis. Another fact which I would impress upon you is, one which anatomy in a great degree demonstrates, and which pathological research confirms, that the center of volition for either side of the body, is not altogether on the same side of the body. Of the center for the left side of the body for instance, the intra-cranial portion is on the right side, and these two portions are brought into connection with each other through certain oblique fibers from the anterior pyramidal columns of the medulla oblongata, which cross from right to left, decussating with similar fibers proceeding from left to right, which belong to the center of volition for the right side of the body."—(Todd.)

Paralysis from Disease of the Brain. Various morbid states of the brain will give rise to paralysis. The most frequent of

these are lesions occurring during apoplexy, the palsy manifesting itself immediately, or in a short time after the attack. It has already been noticed that in many cases of apoplexy there was cerebral hemorrhage and the formation of a clot, and in others there was effusion into the ventricles. In these cases the pressure may be sufficient to paralyze the sensory tracts, and when confined to one side, will produce hemiplegia, or involving both hemispheres, will occasion general paralysis. In some cases it seems to affect but a very small portion of the brain—for instance the origin of the portio-dura, or the third pair of nerves, causing facial paralysis or squinting, but these cases are rare. The paralysis is usually manifest at once; the apoplexy passing off, the patient has hemiplegia or general paralysis. In the rarer cases the apoplectic seizure passes off, but the patient finds that he has not perfect command of the muscles of one side, or it may be only of the face, or of the mouth or tongue, causing an impediment of speech, or of vision, or more frequently squinting. With these symptoms there may be a sensation of fullness of the head, with a dull, obtuse pain located at one point and fixed. These symptoms may pass off in a few days, being the mildest form of paralysis, but in some they gradually increase, or continuing the same for sometimes a week or more, complete paralysis ensues.

In other cases the paralysis results from chronic structural disease, as the formation of tumors within the cranium, chronic inflammation terminating in suppuration, softening of the brain, atrophy, and deposit of tubercles.

In the first case there may or may not be symptoms denoting cerebral lesion prior to the occurrence of the paralysis. Usually the patient complains of a dull, heavy pain in a circumscribed portion of the brain; or, occasionally it may be sharp, tearing, or lancinating. It does not seem to be connected with the many causes that occasion headache, and is sometimes attended with aberration of the senses, unsteadiness of gait, and dizziness. The paralysis is generally sudden, and almost invariably hemiplegic. Chronic inflammation is attended by continual headache, with marked sluggishness and indisposition to mental or physical exertion. There is sometimes difficulty in controlling the voluntary muscles, impediment in speaking, and involuntary muscular movement.

Softening of the brain is sometimes attended with but slight disturbance, especially that form of it that is known as white softening. Usually there is an unpleasant sensation, as dizziness, feeling of tension, dull aching confined to one part, enfeebled mind, indisposition to exertion, and imperfect control over the muscles, and morbid sensations, as of formication, etc. It is noticed further, that the general health is failing, though nutrition is but little impaired, the patient being feeble both in mind and body. Usually these symptoms are constant, but in other cases they come on and pass off for a period of months. Red softening is undoubtedly the result of inflammation, and is more acute in its symptoms and more rapid in its progress. Usually the patient complains of a severe tensive pain located in a small spot, so that it might be covered by the finger. There may or may not be derangement of the special senses, or of the voluntary muscles. These symptoms continuing for from one week to one or two months, paralysis is sudden, and usually in the form of hemiplegia, and complete. There are no symptoms marking atrophy of the brain that are distinctive. In some cases there seems to be a gradual loss of power, and dullness of the mind, and the paralysis comes on gradually. In tuberculous deposit, there may not be any symptom indicating the existence of cerebral disease, the deposit being so slow that the nervous substance accommodates itself to the changed condition, until at last, from irritation induced by its presence, determination of blood results, and paralysis is sudden. In other cases, we find it attended with headache, usually periodic, dizziness, derangement of the special senses, and frequent irritation of the stomach.

Inflammation of the brain may terminate in paralysis, by the changes in structure induced by it; it is almost always preceded by coma; this passing off, paralysis is found to be present. In acute hydrocephalus, we not unfrequently notice partial paralysis, or there may be complete hemiplegia. Injuries of the head may give rise to paralysis, either by concussion of the brain, by secondary inflammation, or by pressure in case of fracture of the bones of the cranium.

HEMIPLEGIA.

As hemiplegia arises in a very large majority of cases from disease of the brain, this will be the appropriate place to describe it. The paralysis embraces just one half of the body from above downward, the lines being very accurately drawn. At first there is usually paralysis of both motion and sensation, but the last usually returns to some extent, or completely in the course of time. In mild cases, the face may be but little affected, if any; usually the fifth pair is involved, but the portio-dura escapes, and we have the peculiar baggy condition of the paralyzed side, the face seeming to be drawn to the other side, and from the affection of the tongue and buccinators, there is more or less difficulty in speaking. Dr. Todd remarks that, "It is curious how rarely it happens that the muscles of the trunk, as the intercostals, or the abdominal muscles, are involved in the hemiplegic paralysis. It must be an extensive lesion which will paralyze these muscles. There is, however, a spinal hemiplegia of which this palsy is a prominent feature."

Hemiplegia sometimes arises from epilepsy, the paralysis succeeding a paroxysm. We suppose it to result from a disturbance of the condition of the brain arising from the epileptic paroxysm, and not from sudden structural lesion. "It leaves behind it a more or less exhausted state of the brain; which, again, will be most upon that side upon which there has been the greatest previous excitement. This state of exhaustion is very apt to continue as one of weakened nutrition, in which the brain tissue is more or less in the condition of white softening. If the parts involved in this be the convolutions, mental power, memory, perception, suffer; if deeper parts, as the deeper parts of the white matter of the hemisphere, and the corpora striata and optic thalami, then we have hemiplegic paralysis" Spinal paralysis is of very rare occurrence, as will be readily conceived, when we know that the lesion inducing it will have to be very high up, just below the decussation of the anterior pyramids, and exactly limited to one half the cord. This has occurred, but as will be seen, it will be a very rare form of the disease.

A very important point in this disease, as connected with the treatment, is as regards the condition of the paralyzed

parts. In some cases we will find that there has been, from the first, complete relaxation and flaccidity of the muscles. In a part of these, nutrition seems to be well performed and sensation returns. In others the muscles become atrophied as time passes, and sensation may not return. In the one case the muscles may be thrown into action by irritation of an extremity, or the use of electricity; in the other, no such result is produced. In these cases the cause may be such complete pressure, as from a clot during apoplexy, as will entirely arrest the action of the nerve substance, or from softening or atrophy. In other cases we notice immediate rigidity of certain muscles, others being flaccid. Dr. Todd remarks that it is of most frequent occurrence in the hemiplegia caused by the apoplectic clot, and that it depends upon a state of irritation, propagated from torn brain to the point of inflammation of the nerves of the affected muscles. In others, again, we will find marked rigidity of the muscles from the commencement, and in these cases we have every reason to believe there is excitation of the brain verging on inflammation. The practical conclusion to be drawn from these conditions is very apparent; while in the one case we may use nervous stimulants and tonics, to call the brain into action, in the other case we employ measures to arrest irritation and prevent determination of blood.

Paralysis from disease of the spinal cord.—Disease of the spinal cord produces paralysis both by arresting the production of nerve force in the gray substance of the cord, but especially by preventing the communication of the affected part with the brain. It almost invariably presents itself as a paraplegia, or paralysis of the lower parts of the body, or in rare cases as paralysis of a certain nerve or organ. Any cause that will result in destruction of the power of the spinal cord to convey nerve force, will result in paralysis; hence we find that it is caused by disease of the membranes resulting in effusion or thickening, by which undue pressure is exerted; by inflammation and effusion within the substance ot the cord; by white softening, the result of atrophy or degeneration, and by red softening, probably the result of inflammation; by tuberculous deposit within the meninges, or the nervous substance; by inflammation or other disease of the vertebra, giving rise to effusion, or change of position and pressure on the cord; and lastly, from injury, either producing a shock sufficient to

destroy the vitality of the cord, or such lesion of the bones as will cause pressure.

The diseased action that induced paralysis may continue for a considerable period after the paralysis is marked, and then becomes an important element in the disease.

Paraplegia.—Paraplegia may be said to invariably arise from disease of the spinal cord, though as will hereafter be noticed, it does not always indicate structural lesion. In the paragraph above. I have named the lesions of the cord giving rise to paraplegia, and it will be seen that in some it will be instantaneous, and in others it will come on gradually. And that in some the evidences of the disease or condition producing it, will be very marked, and in other cases obscure.

Many cases of paraplegia do not depend upon disease of the spinal cord, but upon some outside irritation, the paraplegia being *reflex*. Thus we observe it in some cases of worms, disease of the stomach and bowels, disease or displacement of the uterus, neuralgia, etc.

The proof that these are the causes of the paralysis, and that it does not depend upon disease of the cord is very plain; in that the removal of the peripheral irritation is followed by a cure of the paralysis, and frequently that as the peripheral disease improves, or becomes worse, there is a like change in the paralysis. These cases are usually temporary and readily yield to treatment.

The seat of the spinal lesion will determine the extent of the paralysis, and its gravity and intensity. If the lumbar spine is affected in its lower part, or at the junction of the sacrum, there will be simple paralysis of motion in the lower extremities, supplied by the sacral plexus, and to but slight extent of sensation, as the lumbar nerves are the principal superficial sensory ones of the lower extremities. The bladder and rectum will not be affected as when the paralysis is higher up, and the patient may also have the power to draw the legs up to the body. If it involves the entire lumbar portion of the spine, there will be paralysis of the entire lower extremities and of the pelvis, and the patient will not be able to control evacuations from the bladder and rectum, only in so far as he may yet call into action the abdominal muscles. If in the dorsal region, there will be paralysis of all parts below, except that the intercostal nerves dip downwards in the course

of the ribs. The upper extremities can rarely be completely involved and the patient live, as the phrenic nerves are given off from the third and fourth cervical, which go to form the brachial plexus, and lesion of the spinal cord above their origin is almost immediately fatal.

The symptoms vary greatly in these cases. In some there is complete loss of motion and sensation; in others, sensation partially or completely returns in a few days; and in others, there is only paralysis of motion. When it is very severe, we find that the circulation is impaired, there is coldness or tendency to erysipelatous inflammation and sloughing. In other cases the circulation does not seem so much disturbed, but there is gradual atrophy of the muscles. And in a third class, circulation and nutrition appear to be carried on as usual, and the muscles respond to stimulation.

In a part of these cases we will find more or less tonic contraction, and in others complete relaxation. In some, even though there is manifest atrophy, the flexor muscles gradually contract until they produce marked deformity, being hard and rigid under the skin, as in contraction of muscles in other diseases. Frequently we find more or less involuntary movement, sometimes very distressing to the patient; and in these cases slight irritation of the surface or tickling of the foot will call the muscles of the extremity into spasmodic action.

Paralysis from disease of the nerves or from compression is frequently met with, the most common form being facial palsy. The portio-dura or facial nerve is the one most frequently implicated, and its power of transmission destroyed. This may result from disease of the nerve trunk, or from disease of adjacent structures in any part of its course, causing pressure. We diagnose it by the paralysis of the muscles supplied by this nerve, and especially the inability to close the eye on that side, the face being drawn to the other. It is very rarely caused by disease of the brain, while the fifth pair is very frequently so.

Paralysis of a limb, or of a single muscle, may be caused by compression of the nerves supplying the parts. Thus, I have seen two cases of paralysis of the arm from tumors of the axilla, one being complete, the other partial. Cases of paralysis of parts supplied by the sciatic nerve from the pressure of tumors is recorded, and also from disease of the nerve, and

from suppurative inflammation in its track. Usually there will be but little difficulty in determining the character of the lesion.

Dr. Brown Sequard contends that local paralysis is frequently the result of reflex action, and gives the following instances: "In cases of neuralgia of the face, even when caused by a wound, a paralysis of the whole or of a branch of the third pair of nerves is often observed. This paralytic affection is easily cured when the neuralgia is cured. The arms may be paralyzed by a reflex action from various sources. In one case, after a sprain of the left elbow-joint, the whole of that arm from the shoulder to the elbow became paralyzed, and in a few days afterward, the right arm was also attacked with paralysis, and to a greater degree than the left. There was no other symptom of disease of the nervous system, nor was there any appearance of a rheumatic affection. For several months a variable degree of pain remained in the left elbow-joint, and many times during that period it was ascertained that the degree of paralysis was in correspondence with the degree of pain, and that, when the pain ceased altogether, the paralysis was soon completely cured. It will easily be admitted that I studied the case with interest and care, as I myself was the subject of the observation. In the above case there was paralysis without wasting: it is not rare to find wasting accompany the paralysis when its origin is in some irritation of centripetal nerves. As regards the lower limbs, I have related elsewhere several such cases; as regards the arms, I have seen three cases in which an irritation from a wound on the fore-arm produced a reflex wasting palsy, either in the same arm (in parts, the nerves of which had not been wounded) or in the other arm. The upper as well as the lower limbs, and other parts of the body, may be paralyzed in consequence of an irritation of the bowels by worms. Moll, of Vienna, relates a case of paralysis of the two upper extremities, which had lasted three months, when it was suddenly cured after expulsion of a very long tænia; and Dr. Holland one of anæsthesia and partial paralysis of the lower extremities, which was cured in two days after the expulsion of lumbrici."

Wasting Palsy.—An entirely different form of paralysis is described by Dr. Roberts under this head, and as I have never seen but one case of the kind, I will quote the symptoms

given by him. "The characteristic of wasting palsy is a gradual loss of motive power from atrophic degeneration of the muscles, independent of any disease of the brain or cord. The volitional impulses proceed to the muscles without impediment, but the decaying fibres are no longer able to contract in response. The wasting may extend to nearly all the voluntary muscles, both of the trunk and extremities, or be confined to one or more groups in the upper or lower limbs. This led Aran to divide the cases into two divisions, according as the atrophy was partial or general. Practically it is important to keep the two groups distinct. The gravity of wasting palsy, *so far as the part is concerned*, is commensurate with its extent, *but so far as life is concerned*, it depends on the location. So long as the disease is limited to the extremities, life is not imperiled, but as soon as the muscles of respiration are attacked, the prognosis becomes exceedingly grave, for death is the usual result. General wasting palsy differs also from the partial variety, not merely in the extent and character of its ravages, but in its course and condition of origin; so that there is good reason, apart from the contrasted prognosis, to consider the two groups as distinct varieties." This must not be confounded with the wasting or atrophy resulting from disease of the brain and spinal cord, for though we speak of wasting in hemiplegia and paraplegia, it has reference to imperfect nutrition from want of innervation and proper circulation of blood.

Shaking Palsy.—Shaking palsy, or muscular tremor, bears a distant relation to other forms of paralysis, and though not unfrequently met with, it has been imperfectly described. It occurs most frequently in the declension of life, and must not be confounded with chorea, or the muscular tremor of the young. Frequently its origin can be dated to some intense emotional excitement, or low febrile or inflammatory disease. It may affect a single limb or part, or it may be general. The head and upper extremities are its most frequent seat, and it usually not only increases in intensity as time progresses, but extends to adjacent parts. The affection commences at first with a feeling of weakness, and difficulty in making the muscles obey the will, and more or less agitation when they are moved suddenly. It increases gradually, until the parts are thrown into violent agitation whenever they are moved,

and in some cases can not be kept still, the exertion of trying to still them only increasing the difficulty. When the lower extremities are involved, it is with difficulty that the patient walks, and if in the least excited, there is a tendency to fall forward, which is only controlled by running. In all cases we notice that there is less tremor after rest, and when the person's mind is calm and collected, so that in the morning, after a good night's rest, the muscles can be controlled by the will to a considerable extent. In very severe cases, the patient so loses control over himself that the most common offices have to be performed for him by others.

DIAGNOSIS.—The diagnosis of paralysis is usually very easy, the symptoms being so prominent in most cases that no person can make a mistake. So, also, it is very easy to distinguish the different forms of it; hemiplegia or paralysis of half the body vertically, paraplegia or paralysis of the lower portion of the body, transversely, and local paralysis. Hemiplegia we have already seen, is produced by disease of the brain, except in those rare cases in which it arises from disease of the upper portion of the spinal cord, or those which are produced from reflex irritation or disease. Paraplegia results from disease of the spinal cord or its envelops, except in those cases of reflex paralysis already named. Local paralysis may occasionally result from disease of the brain, as in some forms of facial paralysis, but more frequently from disease of the nerves, or parts adjacent to them, or, as Dr. Brown-Sequard states, the result of reflex irritation. As regards the pathological lesions, we will have to be guided in our diagnosis by the preceding history of the case, and by the present symptoms, it being a very difficult matter in many cases.

PROGNOSIS.—The prognosis in paralysis will depend very much upon the character of the lesion. In some cases we have good reason to know that the parts are irremediably impaired, and in such cases, treatment is of no avail. In others, even though the symptoms may be grave, the patient may completely recover, and if the paralysis is not complete, and there are no evidences showing that disease of the nervous centers is progressing, the prognosis is favorable. We may also give a favorable prognosis in cases in which there is

amendment, so as to give slight motion and sensation, though sometimes we will be mistaken. Rigidity of the paralyzed muscles indicates that there is still irritation of the nervous center, at the seat of lesion, and that the nerves are capable of performing their function, and may be considered favorable if there is no disturbance of the general system and the mind is clear. In cases where the temperature of the part is lowered, and there is imperfect circulation, the prognosis is unfavorable, and especially if attended with marked atrophy of the muscles.

TREATMENT.—A case of paralysis can not be too closely studied, as we wish to determine the exact lesion of the nerve centers, as well as the indications for special remedies. A simple functional lesion will yield promptly to a well directed treatment, whilst an exudation or a blood-clot must be slowly absorbed, and afterward the nerve tissues slowly regain their functional activity.

When there is evidence of an active circulation of blood to the nerve center, at first I prefer the sedative treatment. Aconite or Veratrum, with Gelseminum, Rhus, Bryonia, Macrotys, or other indicated remedy is given until the acute symptoms have passed.

At the same time the bowels are opened once a day, the urinary secretions kept free, and the skin in as good a condition as possible, by the use of baths.

The food should be nutritious and of easy digestion, as any failure of digestion is at once reflected to the diseased nerve center, as is an imperfect blood-making and excretion.

In the early stage local applications are sometimes important, and much benefit may be derived from them. The case in hand must be our guide for their selection. Hot water, continuously applied, is the one most frequently beneficial; but there is the opposite case, where the ice-bag will do better. A mustard plaster, or a stimulating embrocation, give relief in some cases; whilst in others the use of Aconite or Belladonna are the remedies. I have seen marked good results follow the use of dry or wet cups, as I have the Thapsia plaster or an Ammonia and Chloroform blister.

With evidence of an impaired circulation in the nerve center, the treatment may commence with Ergot, which is probably the most satisfactory remedy in the early stage of

the disease. The dose will be from five to twenty drops of a good tincture every three or four hours. I believe in single remedies, especially in diseases of the nervous system, and whether Ergot, Belladonna, or Strychnia are selected, I advise it to be given alone.

It is a little singular, but in many cases an anti-rheumatic treatment proves the best for a paralysis, or at least an important addition to the treatment. Bryonia is especially good, and goes with Strychnia and Nux. Rhus is indicated by the burning and itching of the surface, as in other diseases. In one case the symptoms were so marked that Rhus was the only remedy given, and the cure was prompt. Salicyllic Acid should only be given when the patient has a vigorous circulation. With a scanty urine, it is combined with Acetate of Potash. Sticta is always thought of when the patient complains of the cervical spine, and has an inclination to cough.

In this case more attention should be paid to the stomach, bowels, kidneys and skin, than in the other; for any wrong of these makes a further impairment of innervation. If the tongue is clear, the bowels moved, the urine free, there is a good chance of recovery. But with a coated tongue, a bad breath, a turbid, unpleasant urine, and bowels that will not move, the chances are not good. I need not name special treatment; for what I have said suggests what should be looked for, and when a wrong is found it is to be corrected. The kidneys may be kept acting freely by the employment of a weak solution of Acetate of Potash and Hydrochlorate of Ammonia, ℥j. of each to Water, ℥iv. In addition, friction with the hand, or with the flesh brush, or the local application of the Tincture of Cajeput, or the use of Electricity, with motion as hereafter named, will fulfill the indications. There are cases in which we would give stimulants freely, Cod-liver Oil, the Hypophosphites or Phosphureted Oil, Quinine, and all those means that are known to improve nutrition and favorably influence the nervous system. The means recommended in paraplegia may also be adopted in in some cases, as those already named are applicable in a large majority of cases of spinal palsy.

In paraplegia, and in many cases of hemiplegia and in local paralysis, Nux Vomica and Strychnine are resorted to more frequently and with better success than any other remedies. It is the most powerful stimulant of the nervous system we possess, and undoubtedly increases the amount of blood in the nerve substance and its surroundings, and the vital properties of the nervous centers. This being the action of the remedy, we would employ it in cases in which there was no evidence of irritation, but rather of imperfect circulation and nutrition. Belladonna has been highly recommended in paralysis by some continental physicians, and though often unsuccessful here, it may depend more upon our want of skill in selecting cases, than upon the inertness of the remedy.

Dr. Brown-Sequard states that: 1st. Belladonna is one of the most powerful and reliable remedies that we may employ, in cases of paraplegia, with symptoms of irritation of the motor, sensitive, and vasa-motor or nutritive nerve fibres, of the spinal cord, or of the roots of its nerves; in other words, in cases of congestion, meningitis, or myelitis. 2d. Belladonna is a most dangerous agent, able only to increase the paralysis, if employed in paraplegia, without symptoms of irritation, such as cases of white softening, or of the reflex paraplegia.

Ergot has been used with advantage in some cases of both paraplegia and hemiplegia, but more especially the first. It is especially indicated in the same cases as the Belladonna, in which there is congestion or irritation of the spinal cord, and should be avoided in cases without irritation, as in reflex paraplegia and softening. Sulphur and Phosphorus may both be employed with advantage in cases of softening of the spinal cord, or where there is evidence of feeble nutrition. Cod-liver Oil, Quinine, Iron and the bitter tonics will occasionally prove very serviceable in the last named cases, and sometimes in all forms of the disease. Cantharides, Rhus Toxicodendron, Lachesis and Bryonia, act in a very similar manner to Strychnine and Stramonium; Hyoscyamus and Indian Hemp to Belladonna.

As heretofore remarked, we obtain great advantage in cases of paraplegia, with symptoms of irritation of the diseased portion of the spinal cord, from the use of counter-irritation. In the majority of cases we use the irritating plaster, in some the dry cups, in others firing, and in others the seton, issue, etc.

The hot douche to the spine is sometimes efficacious, but the cases must be carefully selected. Suppuration is the end desired in a majority of cases, and any application that will continue it without endangering the tissues will prove the best. In the opposite class of cases, we would use stimulant applications and friction to induce determination of blood. Compound Tincture of Cajeput answers a good purpose, and the salt water friction may be employed. The cold douche to the part of the spine affected, is sometimes useful, but it must be employed for reaction rather than for its immediate influence. If circulation is feeble in the paralyzed part, we would direct frictions, with the use of a stimulant, as the Tincture of Capsicum in such strength as was necessary. This is especially indicated where nutrition of the part is impaired, as is manifest by gradual atrophy; and in this case, in addition to the friction, we would move the extremities in various ways to call into action the muscles. Electricity is of much advantage in these cases, not because it removes the paralysis, but because by it we can call the muscles into action, and stimulate normal circulation of blood and nutrition. We employ Electricity as a curative agent in some cases, passing the current from the part of the nervous center paralyzed through the body in the direction of the nerves, or in some cases confining it to the nervous center alone, as in cases of paraplegia from disease of the spine.

Shaking palsy, if of long duration, is not only incurable, but does not usually admit of amelioration. In some acute cases, arising from arrest of secretion, the proper use of purgatives and diaphoretics may be successful. Wasting palsy demands considerable care and attention. The patient should be put upon the use of Cod-liver Oil, the bitter tonics and Iron, should have abundant exercise in the open air, and a highly nutritious diet. In addition, galvanism should be applied every day, for ten or fifteen minutes at a sitting: it is not used as in previous cases—passing the current from the spine in the direction of the nerve trunks—but the poles of the battery being covered with wet sponge, they are placed on the affected muscle a short distance apart, and by moving, the entire structure is influenced, which increases the advantage of the application: those parts that have suffered most should receive the most attention, but it should not be continued too long.

PROGRESSIVE LOCOMOTOR ATAXY.

Whilst this is not a new disease, it has hardly gained a place in the common treatises on the practice of medicine, though described as early as 1861, and it may be as early as 1851, if we take the description of Dr. Romberg. The name, "progressive locomotor ataxy," is a very good one, and tells the history of the disease. The word "ataxy," may be rendered "want of order," or "irregularity," and we would have then progressive want of power to order the movements of the muscles of the body, which is essentially the disease.

It is difficult to determine the causes in many cases. In some it seems to arise from fast living; in others from venereal excesses; in others from devotion to business, and especially business worry; and in still others it has been preceded by rheumatism. In some cases I am satisfied it is from syphilitic lesion of the brain and spinal cord.

SYMPTOMS.—The symptoms vary in different cases, but in the main feature, "loss of ability to command the voluntary muscles," they agree. In many cases pain is a striking and unpleasant symptom. In one it comes on very much like a rheumatism, but with very little swelling of parts; in another it is evidently neuralgic—the pain will suddenly commence in a part, more frequently the legs, boring, twisting, darting, until it would seem that the sufferer could stand no more, and it will then suddenly cease, or may be gradually wear away in the course of three or four hours In some cases the seat of pain can be covered with the finger, and it will occupy the most singular place, as in one of the deep peronei muscles, a single bone of the tarsus or metatarsas, etc.

As the disease progresses, the patient begins to wear an anxious look; he does not sleep so well at night, and though he may eat well, his nutrition is not good, and he loses flesh. He gets a little unsteady on his legs, and finds that it requires more effort to walk, and that his walking is still more impaired if his attention is engaged with something else. Still further along the legs want to walk themselves, and throw around unpleasantly, and become unsteady in the support of the body. Now if the patient shuts his eyes, he finds there is great difficulty in maintaining the erect position, and a dispo-

sition to pitch forwards or backwards. Now walking is done wholly under the influence of the will, and it will require constant attention, with possibly the eyes directed to the feet.

Trousseau says:—"According to Dr. Duchenne (de Boulogne), the fundamental characters of the disease are—'Progressive abolition of the faculty of co ordinating movements, and apparent paralysis contrasting with the integrity of the muscular power.' This is a very incomplete definition, however; but, for the present, I shall not attempt to give you another myself, for definitions in general—and in medicine perhaps more than in any other science—are not easily framed. They become still more difficult, nay impossible even, when they must be applied to a recently known disease, or at least a disease which has been but recently studied, and presenting an infinite variety in its manifestations, and the order of their sequence.

"If you ask an individual suffering from ataxy to walk, he staggers, makes great efforts to maintain his equilibrium, and feeling that his muscles do not respond to the influence of his will, he seeks for a point of support. It is especially at starting that this difficulty in maintaining the equilibrium of the body is remarkable. When once started the patient is able to walk, although he does it badly, and throws his legs about to the right and to the left. Occasionally he loses his equilibrium entirely, and falls down, unless he be supported, especially when he turns round. Formerly, a man whose gait was uncertain, whose legs were thrown to the right and to the left, was set down as suffering from paralysis, and if no serious impairment of the intellect were present, the disease was localized in the cord, and called paraplegia. No physician, before Dr. Duchenne (de Bologne), ever thought of testing the muscular power of these so-called paralytic patients. The idea first occurred to this *savant*, and he it was who detected that their muscular power was considerable, and that they only lacked the faculty of co-ordinating their movements. You have yourselves examined my patients in St. Agnes Ward who are suffering from locomotor ataxy. The one in bed No. 2 is a young man whose muscular power is so great that his limbs can not be flexed or stretched against his will. Although his gait be so vacillating, he is strong enough to bear on his shoulders, when standing, a weight of 160 lbs.,

on condition, however, that he may rest on a friend's arm, or on a piece of furniture; and I showed you that he could carry on his shoulders several students in succession. Surely this is not muscular weakness, and still less paralysis."

The progress of the disease is very variable. Whilst one may trace the gradual development of the disease for a twelvemonth, or longer, another will lose the use of his legs in a few weeks. In some it will be purely a locomotor ataxy, but in others there will be nocturnal incontinence of urine, spermatorrhœa, sudden ejaculations of semen, partial or complete impotence, difficulty in passing urine, difficulty in evacuating the bladder, etc. Trousseau says:

"When children walk along a narrow plank or the edge of a boat, you must have noticed the peculiarity of their gait. In order to maintain their equilibrium, they take one step forward, stop, sometimes go backwards again, and incline their body to one side or the other, instinctively putting their arms out like a sort of balancing pole. In fact, their movements resemble those of an unskilled rope-dancer.

"The gait of an ataxic patient is something like this. At the outset of the complaint he staggers a little, especially as he gets up after having sat down for a long time. He rests on a stick or on the chair which he has just left, and he starts. As he takes the first step, the arm which does not rest on the stick leaves his side and oscillates like that of a rope-dancer, and his body inclines a little forwards. His walk is at first slow and uncertain, but becomes involuntarily hurried. Whereas in true paralysis the leg is slowly lifted off the ground and is dragged along, in ataxy the foot is thrust forward in variable directions, and comes down suddenly. Instead of the measured flexion of the knee-joint, which obtains normally, the flexion is sudden and followed by forcible extension.

"When the disease is in a more advanced stage, if the patient does not rest on a stick, he throws his legs about with still greater disorder, and the inequality of his steps renders the loss of equilibrium still more imminent. Both his arms are then moved about like those of a rope-dancer, and his trunk itself is inclined or straightened according to the displacement of his center of gravity.

"This uncertainty and difficulty of progression do not prevent the patient from walking several miles on even ground, and he will often tire out persons free from any nervous affection. We had an instance of this in the case of a stonemason, who was admitted under me, September 18th, 1861. He had great difficulty in walking a few paces over the waxed floor of the ward, and yet on the previous day he had walked (almost without fatigue) from one end of Paris to the other.

"When the disease, however, has made considerable progress, the violence and irregularity of his movements soon exhaust the patient's strength, and he can scarcely walk a hundred paces before he gets out of breath, and is thrown into profuse perspiration.

"There even comes a time when, although he still possesses muscular power, he can not move a single step without falling down. If he be then supported by two persons under the arms, whilst he tries to walk, his legs move like those of a puppet, and are thrust to the right and to the left, forwards and backwards, with inconceivable disorder. From this time forward he is obliged to keep in bed. The muscles of his trunk become affected also, and he can no longer sit up in a chair, unless he holds on to it with his hands, when his arms are not themselves implicated.

"You can easily understand, gentlemen, how grave the prognosis must be in such cases. Death inevitably supervenes, and all the more quickly that sloughs form on the nates and about the trochanters, and that the suppuration to which they give rise rapidly exhausts the patient.

"Instances, however, occur of patients who, even at this advanced stage of the disease, regain, sooner or later, some degree of motor power, and you had occasion to see this in the case of a man at No. 11 in St. Agnes Ward. After having been for a long time compelled to keep to his bed, he improved so much that he was first able to get down his bed by himself, next to walk a few steps, resting on a companion's arm or taking hold of a chair or going from bed to bed, and later he could come up or go down stairs. This amelioration lasted several months, and I was indulging the hope that he would get well, when he was seized with hæmoptysis accom-

panied by all the signs of phthisis, which ultimately carried him off."

POST MORTEM EXAMINATION.—Whilst the lesions vary in different cases, the following report of a post mortem will give a very good idea of the more common condition of the spinal cord:—

"The brain was well formed, of normal consistency, and without a trace of injection. Successive sections of the organ showed it to be healthy throughout.

"The cerebellum, pons Varolii, and medulla oblongata were also healthy.

"The cervical and dorsal portions of the spinal cord were of normal size, color and consistency; the lumbar portion alone was slightly diminished in size.

"On dividing the latter transversely at its upper limit, the surface of section of the posterior columns was seen to be of a grayish hue, evidently pointing to an alteration of these columns, which were still, however, of normal consistency.

"The anterior roots of the lumbar portion of the cord were normal; the posterior, on the contrary, were very considerably atrophied, this atrophy being peculiarly striking when a healthy cord was placed by the side. The roots were thus shown to have lost about two-thirds or three-fourths of their normal size. Their aspect was also considerably modified; they were not white, but of a reddish-gray color, looking pretty much like bundles of capillary blood-vessels. Besides, they did not project sufficiently from the surface of the cord, as they issued from it, but spread out like delicate ribbons of scarcely any thickness.

"Under the microscope, the nerve-tubes of the posterior roots were seen to have lost a considerable portion of their medullary substance, although some of them looked still normally full, and contained a cylinder axis. Those that were reduced in size were contracted in one point, swollen out at another; in a word, they were very irregular. In a great many the medullary substance had completely disappeared, so that they looked constricted here and there. In some, again, vestiges of the medullary substance reappeared at long intervals. Where it was completely absent, the tubes, when examined with a power of 400 diameters, had a filiform ap-

pearance, without, however, presenting a perfectly regular contour.

"As the nerve-tubes were unequally altered, the progressive series of their degeneration could be traced out. Those that were normally filled with medullary substance accounted for the retention of sensibility in several portions of the integuments; whilst the empty or nearly empty tubes explained the impairment of sensibility in the lower limbs."

PROGNOSIS.—Whilst the prognosis is unfavorable, some cases will recover. If seen in the early stage of the disease, I should think it possible to arrest its progress in the majority of cases, if the patient will implicitly follow directions. Nothing can be done if the patient obstinately insists on going about and walking the disease off.

TREATMENT.—It is impossible to give a treatment that will be adapted to all cases further than this, that rest must be an essential part of it. If the disease be well marked, six weeks in bed would be the most successful treatment. We have certain remedies which give rest to the nervous system, and these will be thought of as principal means. They are selected by the ordinary expressions of disease, or to put it in better form—they are selected as they would be in other diseases. Again, the remedies classed as anti-rheumatics come in play, as pain is an important feature: Macrotys, Bryonia, Rhus, Apocynum, Phytolacca, Colchicum, etc.

We do not obtain the advantages from the bitter tonics and restoratives we would anticipate from the impairment of nutrition and loss of flesh. Some of the rarer of these prove the most useful, as Cuprum, Phosphorus, Silica, Sulphur, Graphites, and more rarely Arsenic in very minute doses.

The treatment by "suspension" was thought at first to offer better chances for recovery than any other, but, in my opinion, the cases should be carefully selected. One of the best methods is to make an inclined plane of a broad plank, and then suspend the patient from the top by a well adjusted system of straps at the base of the cranium; as patients have died from suspension care must be used.

CEPHALALGIA.

Headache is one of the most common forms of disease that we meet with, and though generally considered as but a slight affection, there is none probably that occasions more suffering, or that is less amenable to the usual treatment. It would seem, from the extent of information on this subject among medical men, that it was hardly worthy of notice, and had better be left as a matter of family practice, or as a disease for patent medicines. The causes of headache are very many, and though we can not possibly tell why they produce this affection, or even what structure it is that is painful, we are enabled, by studying them, to relieve the pain in nearly all cases, and to effect permanent cures in a great many.

We might group the different kinds of headache under the following forms: 1st. Headache from determination of blood. 2d. From cold. 3d. From depression or exhaustion. 4th. From derangement of the stomach, liver, etc. 5th. Pericranial, or from disease of the pericranium, or cranial bones. 6th. From deficient urinary secretion. 7th. From rheumatism. 8th. Periodical, from malaria; and 9th. The sympathetic. It is true that we can not always make these distinctions, and that two or more of them may be associated together, but as giving a general idea of the disease, the divisions are useful.

Headache from determination of blood is a frequent form of the disease, and may arise from any cause producing irritation of the brain, as over-excitement, severe exercise in a stooping position, or in the sun, etc.; or from arrest of secretion, the blood vessels being overloaded in consequence. The same causes will give rise to a slight congestion of the head, and may be considered as similar in character to determination. The symptoms of this form of headache are, intense aching pain in the head of a tensive or throbbing character, the head is hot, the face flushed, the eyes suffused and intolerant of light, and the secretions are more or less arrested. It usually passes off in twenty-four or forty-eight hours, but may continue for several days. Some persons seem subject to it, and have attacks from slight causes.

In many cases of this form of headache we would give a brisk purgative, as the Compound Podophyllin Pill, in the meantime using the Tincture of Gelseminum to modify the

fever. If the pain is excessive, we may use the hot foot bath, and give the patient some warm diaphoretic infusion, or:

℞ Tincture of Asclepias, f3ij.
Tincture of Gelseminum, f3ss. M.

In doses of a teaspoonful every hour until free perspiration is produced. When the person is subject to frequent attacks of such headache, we may recommend that particular attention be paid to keeping the bowels regular, that a daily cold bath be used, if possible, and if persistent, we may prescribe:

℞ Acetate of Potash, 3ss.
Tincture of Gelseminum, 3j.
Water, f3iv. M.

Take in teaspoonful doses, three or four times a day.

Headache from cold is a frequent form of the disease in winter and spring, and will sometimes last for several days at a time. It seems to be dependent partially upon arrest of secretion, but more especially upon the sub-inflammatory condition of the mucous membrane of the nose, pharynx, etc. The head feels full and heavy, and the pain is usually dull and aching, with occasional sharp, darting pains just above the eyes, especially on stooping, or any continued mental exertion.

We would treat this case as we would the bad cold it is associated with. The feet should be bathed in hot Mustard water, the patient packed warmly in bed, and an active diaphoretic used to induce free perspiration. A purgative may frequently be used with advantage, and sometimes the speediest relief is obtained from the use of an emetic. Tincture of Gelseminum, in doses of five to ten drops, every two or three hours, is a valuable remedy in many cases, and an alkaline diuretic should follow the diaphoretic. Frequently we would direct a sinapism to the back of the neck and between the shoulders, and occasionally in severe cases we may use the cups.

Headache is of frequent occurrence in *anæmic conditions* of the system, and is sometimes the most troublesome symptom; in other cases the head is perfectly clear and free from pain. We suppose that the headache in these cases is owing to feeble circulation in the brain and imperfect nutrition, though in many cases, even here, it will be found to depend upon derangement of the stomach and arrest of secretion. Headache from temporary exhaustion, from excessive physical or

mental exercise, or emotional excitement, is of very frequent occurrence, and is usually very severe and attended with derangement of the stomach, and hence forms one variety of *sick headache*. In both these cases the pain is sharp and acute, darting, tearing, tensive, and throbbing, and the patient suffers severely. Usually the face is pallid and contracted, the eyes sunk in the head, a dark line around or under them, and a weary, anxious expression of countenance. It may last but one day, or it may continue for several, and may recur frequently.

For temporary relief give the patient Sulphuric Ether, five to ten drops on sugar, and repeat if necessary. In place of this, Carbonate of Ammonia may be used in doses of five to ten grains. If the sufferer will now lie down for an hour, and especially if he gets a short sleep, the headache will have wholly disappeared If the pain is dull and heavy, the sufferer feeling sleepy, Belladonna will speedily give relief. The dose will be from the fraction of a drop to one drop. Dull pain in the back of the head (sometimes chronic) is relieved by Iron; pain from front to back by Bryonia; pain in the forehead and left orbit by Rhus; when associated with feelings of depression or fear, by Pulsatilla. When there is a general anæmic condition, the permanent cure will depend upon the restoration of a normal quantity and quality of the blood; Nux Vomica or Strychnia, Sulphur and some preparation of Phosphorus, being important agents in the cure.

Pericranial headache is not of frequent occurrence, though occasionally a case is met with. It is said to occur only in those who have suffered from continued cerebral excitement, and that it depends upon a highly vascular state of the brain and membranes. It is caused by cold, by sudden changes of temperature, by excitement of the brain from long-continued study or emotional excitement. The pain is tensive and remitting, and is increased by pressure, or by moving the muscles of the scalp. The patient is restless and uneasy, sleeps poorly at night, has bad dreams and startings in his sleep. It may last for several weeks or months, being better when the weather is fair, and the patient calm and quiet, but aggravated by excitement, by change of weather, or exposure to a draught of cold or damp air. Disease of the bones of the cranium giving

rise to headache, is most generally syphilitic, as in most other cases no disturbance of the brain is produced. The pain is localized and remittent, occurring more frequently and with greater severity at night.

In the first case we should recommend perfect quiet so far as mental exertion or excitement is concerned, the patient taking as much physical exercise in the open air as seems beneficial. The bowels may be kept open with the Podophyllin pill, the urinary secretion free, by the use of alkaline diuretics, and the condition of the skin improved by the use of the Salt water bath with friction. In some cases we may accomplish all that we desire with medicine by the use of the sedative, associated with such of the remedies named under the prescribed forms, as may be indicated in each particular case. The Iodide of Ammonium, in doses of from three to five grains four times a day, answers a good purpose in cases of cerebral excitement, and especially in those in which there is temporary forgetfulness and dizziness following the preceding condition. In disease of the cranial bones we would adopt an antisyphilitic treatment if the case was in any degree obscure, and we might so arrange it as to relieve the pain at the same time we were counteracting the specific disease; as,

℞, Extract of Conium, ʒj.
Iodide of Potash, ʒij.
Tincture of Macrotys,
Tincture of Corydalis, aa. fʒss.
Water, fʒiij. M.

Give in teaspoonful doses three times a day.

Headache from deficient action of the kidneys, is in my opinion, the most common form of the disease. It is occasioned by cold or any cause that tends to arrest the secretion. In some persons it recurs frequently, and lasts for one or two days at a time, so as to become a source of great annoyance. In the milder cases the head feels heavy and dull, and there is a dull, aching pain and feeling of soreness in the base of the cranium, sometimes shooting from side to side, and at others from before backward. In severe attacks, the pain is intense, darting, throbbing, and tensive, and is aggravated by motion, and especially by noise, or stooping. If attention is called to it, it will be noticed that the urine was scanty prior to the attack, and became more free afterwards.

We can mitigate this form of the disease by the administration of purgatives and diaphoretics, but it is more readily

arrested by the use of the saline diuretics. The tendency to the disease may be frequently overcome by the employment of a solution of Acetate of Potash in the usual doses, whenever the head commences to feel heavy and bad.

Derangement of the stomach is a frequent cause of headache, and especially in persons of sedentary habits, and those who have but little exercise in the open air. It is noticed in these cases that susceptibility of the nervous system is increased, and the digestive and assimilative functions weakened. This form of headache is induced by anything that irritates the stomach, as indulgence in improper food, eating late suppers, overloading the stomach, too free use of stimulants, especially if not accustomed to their use, constipation of the bowels, etc. An attack of this headache usually comes on with a sense of weight and tension, with dizziness, and a sharp, lancinating pain when the patient stoops. In an hour or two the patient frequently feels chilly, and there is a sensation of nausea and disgust, which not unfrequently terminates in vomiting. The pain now becomes severe, is dull, aching and tensive, with throbbing in the temples, and almost insupportable weight; or is sharp and lancinating, darting from one part to another, and seeming sometimes as if the head would be torn to pieces with its violence. It usually commences in the morning, and does not terminate until the patient goes to sleep at night, and in rare cases continues for several days.

If called to a case of this kind of headache during the attack, I usually administer an emetic, one that will act quickly and kindly being preferred. There is no other way to check the paroxysm in a majority of cases, and this is very efficient. Otherwise, I would have the feet bathed in hot Mustard water, a sinapism applied over the epigastrium and upon the nape of the neck, and give freely an infusion of Sage, Spearmint, Pennyroyal, or any warm, stimulating diaphoretic. Quite frequently when the patient has drank a cupful, vomiting ensues, and it is thrown up; if it is now repeated, in a short time the patient will go to sleep, and will awake refreshed. We can generally ward off an attack by the use of the Neutralizing Cordial, or a mild cathartic taken the evening previous, or by the administration of an alkaline diuretic. For the radical cure, we will adopt such means as would seem indicated from

the condition of the stomach, some form of dyspepsia being almost always present.

Rheumatic headache most usually results from cold, especially night exposure, or sitting where the cold air will strike the face, though sometimes it is observed as a metastasis of rheumatism. It may be situated in the muscles, as the occipito-frontalis, temporal, or the muscles of the occiput, and back of the neck, and is sometimes associated with determination to the membranes of the brain. "The pain is severe, heavy, distracting, and aching, and in its uncomplicated state is attended by a sense of coldness, by great tenderness of the scalp, by rheumatic pains, extending down the neck, or in one side of the neck, or one shoulder, or in the face; sometimes by copious perspiration, and more rarely by rheumatic inflammation of one or both eyes. It is generally aggravated in the evening, and alleviated in the morning and by warmth." If the membranes of the brain are affected, there is also giddiness, drowsiness, and internal throbbings, the face being often flushed, the eyes injected, and the vessels loaded.

We would treat rheumatic headache as we would any case of rheumatism, to which the reader is referred for full description. Tincture of Macrotys, with Tincture of Asclepias and Gelseminum, equal parts, given in teaspoonful doses every two or three hours, is often very efficient. We may add to it an alkaline diuretic, as the Acetate or Citrate of Potash, or we may use the last named agents alone. Macrotys with Conium forms a good combination; or—

℞ Tincture of Bryonia. gtt. x.
Tincture of Macrotys. gtt. xv.
Iodide of Ammonium, ʒij.
Water, ʒij. M.

Give in teaspoonful doses every three hours. Cups to the nape of the neck, followed by the irritating plaster, is the most useful local application.

Headache is frequently periodic, and is occasioned, we suppose, by the same causes that give rise to other periodic diseases. In the most frequent form, it comes on in the morning, and gradually increases up to noon, and then decreases until evening. It may, however, appear at any period of the day, or every other, or every third day. The pain is sometimes dull, heavy, and contusive, and at others sharp, lancinating, and throbbing; there may or may not be sickness of the stomach,

or chilly sensations, or slight febrile action when the pain is most intense.

In periodic headache we wish first to establish the secretions, which are almost always impaired, and next to administer some remedy capable of controlling the periodicity. Thus, if the bowels were costive, we would give a Podophyllin purgative, with a diaphoretic, as, Tincture of Asclepias and Eupatorium, with Tincture of Gelseminum, and an alkaline diuretic. In some cases this will control the headache, but usually it only prepares the way for the administration of Quinine, which is given in the same doses that would be used in a case of ague. Given in this way, Quinine always arrests the disease, but if the system is not properly prepared for it, it frequently fails.

Sympathetic headache is sometimes called *nervous*, and generally occurs in feeble, debilitated persons, and those of a sedentary habit. It is almost always associated with disease of some other part of the body, and is thus frequently seen in cases of uterine disease, especially functional lesions, in derangements of the urino-genital organs, the bowels, etc. The pain varies in character, resembling the two preceding forms, and recurs frequently, but at irregular periods.

Having determined the nature of the lesion giving rise to the headache, we will frequently relieve it either by curing or palliating the primary disease. Any of the means already named may be employed in addition. The Jeffersonia has been strongly recommended in this and analogous cases, and is well worthy of trial. Liquor Ammonia is used with advantage in this and some other forms of headache; twenty to forty drops may be thoroughly mixed with a cup of gruel, and taken at bedtime, or whenever the paroxysm of pain occurs. Dr. Simpson recommended the Sulphate of Nickel in doses of from one half to one grain three times a day, and it seemed to be of more service in chlorosis and amenorrhœa.

CHAPTER X.

DISEASES OF THE ORGANS OF SPECIAL SENSE.

These affections are of very frequent occurrence, and except from special treatises, the practitioner has no means of reference, as they are but partially described in works on practice and surgery. For some years past the treatment of diseases of the eye and ear have been made a specialty; and they have been so divided and subdivided, and so many long names affixed to small things, that the general practitioner has great difficulty in understanding a technical work on the subject. There can be no doubt but that these diseases can be better treated by the specialist than by the general practitioner, and yet many times it is impossible for the patient to get other treatment than from the family physician. This fact, if no other reasons existed, should cause us to study these diseases with that care that will enable us to diagnose their various phases, and treat promptly and successfully those that are amenable to medicine, reserving those cases for the oculist that require surgical interference. While, therefore, I shall be compelled to be brief in my description, I will try to place it in such a light that it will be readily understood.

DISEASES OF THE EYE.

The eye is one of the most important organs of the body, and though its diseases do not endanger life, their favorable termination is as anxiously watched for by both patient and friends as the more grave maladies. As regards the pathology of these affections, we will find it the same as in other portions of the body, and as a general rule, the same treatment will be applicable. Inflammation of the structures of the eye is the

same disease as inflammation of any other part of the body, differing only as regards the peculiarity of structure and function of the parts. And in the treatment of this affection the same general principles apply in the one case as in the other. So it is in all other diseases, and he who properly understands the pathology and nature of the affection, need be at no loss for appropriate treatment.

The organ of sight, it will be recollected, consists of two parts, the eye itself and its appendages, the latter being two palpebra or lids, the conjunctiva or investing membrane, the lachrymal apparatus, the muscles moving the eye, and the cellular and adipose tissue that forms its bed. Each of these parts may be diseased, but some of them so rarely that it is hardly worth while to notice them in this place. The globe of the eye is composed of three tunics, the external composed of the sclerotic and cornea, the middle of the choroid, and the internal of the retina or expansion of the optic nerve; it has a muscular septum dividing it into two parts, the iris; and has three humors possessing different degrees of density, the aqueous, the vitreous, and the crystalline lens.

PALPEBRAL DISEASE.

The eyelids may be the subject of phlegmonous inflammation, usually associated with erysipelas. They are swollen and livid, and very painful, and occasionally the inflammation extends to the cellular tissue of the orbit. It may terminate in resolution or suppuration, the pain being severe and throbbing when pus has formed, and the constitutional symptoms tolerably well marked. If the inflammation is dependent upon erysipelas, we may apply equal parts of Tincture of Muriate of Iron and Glycerine, every two or three hours, keeping a cloth wet with the same over it; if from other causes, a poultice of equal parts of Hydrastis and Ulmus, or cloths dipped in a decoction of Cornus, with a small portion of Tincture of Aconite. The patient should have the proper sedative, with Rhus or other remedy indicated, and if necessary, a diaphoretic and diuretic given. If suppuration occurs, the abscess should be carefully opened as soon as it is detected, as if it remains it increases in size, and sometimes causes great destruction.

Furuncle, or boils of the eyelid, are of very frequent occurrence, and sometimes occasion much suffering. Occasionally they pass through their stages rapidly, a week sufficing for their removal, but in other cases they are very chronic When formed on the edge of the eyelid. they are called *styes*, and are smaller but not less painful. If they continue to recur, give the patient Lime water, and have the eyelids bathed with a solution of Salicylic Acid and Borax. Sometimes may be incised, and if pus has not yet formed, touched freely with a crystal of Sulphate of Zinc, and a poultice applied.

Ptosis, or falling of the upper eyelid, is caused by paralysis of the third pair of nerves, or by disease affecting the eyelid, or the levator muscle. In cases of paralysis, it may be relieved sometimes by the use of Electricity, or local stimulant applications and the proper internal remedies ; failing in this, and in the cases not dependent upon paralysis, a surgical operation is demanded. Entropium or inversion of the eyelids, and ectropium or eversion, are only remediable by surgical operations.

Trichiasis, or inversion of the eyelashes, is popularly known as "wild hairs in the eye," and is often a source of great irritation, if not of inflammation. The trouble is owing to a misdirection of the cilia, a portion of them being turned inwards, so as to come in contact with the eye. The cause is usually easily detected by turning the patient's eye to a strong light and slightly raising the lid, the faulty hairs being seen to pass inwards to the conjunctiva. They are usually of a light color, smaller and much more flexible than the normal ones, and for these reasons are sometimes detected with difficulty. In cases of partial trichiasis the treatment is easy, and consists simply in removing the offending cilia with a pair of forceps. I can yet feel the mortification I once experienced, in which, after treating a case of "sore eyes" for two weeks, the patient was cured in forty-eight hours by an old woman removing these faulty hairs. In severe cases this will not answer, a surgical operation being necessary.

OPHTHALMIA TARSI.

Inflammatiou of the edges of the eyelids is noticed more frequently in children than in the adult, and is frequently associated with some depraved habit of body, as scrofula. When primary, it may be the result of cold, smoke, impure air, and filthiness; but it is most usually a sequence of catarrhal ophthalmia or scrofulous conjunctivitis. The disease is located in the edge of the lid and meibomian follicles, and in many cases so affects the roots of the eyelashes as to cause them to fall out, hence that appearance termed "blear eyes." The eyes look sore and tumid, and the patient complains of a sensation of roughness, and as if there was sand in the eye, when the lids are moved, and thus there is the constant tendency to keep them partially closed. They are agglutinated together in the morning, sometimes so much so that the patient has to soften them before he can open them, and it is even then attended with pain. Ophthalmia tarsi is essentially a chronic affection, with but little tendency to spontaneous recovery, and is sometimes very difficult to cure, and if the meibomian glands are closed, the edge of the lid has a shining, glistening appearance.

TREATMENT.—As there is almost always a faulty constitution, with marked evidence of some cachexia, we find it important to put the patient upon an alterative and tonic course of treatment: A solution of Acetate of Potash, with a vegetable alterative as the Rumex, Corydalis, Scrofularia, etc., with sometimes Iodide of Ammonium. Some preparation of Iron should be given with this, frequently the Tincture of Muriate of Iron will answer best; and, if necessary, the bitter tonics may be added. Very much depends upon keeping the eyes clean, and removing the tenacious secretion without causing pain and irritation. Hence, the eyes should be frequently bathed during the day with warm water, or a weak decoction of Cornus or Hydrastis, or a solution of Salicylic Acid and Borax. We will find that Glycerine, to which is added Resorcin, gtt. to ʒj, makes a good application in severe cases. The parts being perfectly cleansed, we apply once or twice daily, a very small portion of mild Zinc or

Ophthalmic Ointment; or, instead of this, we may use a mild collyrium of Sulphate of Zinc or Borax.

First remove the scales or scabs, either with warm water or a weak alkaline solution. Have patients use a boracic acid wash (ʒij. to water Oj.,) three times a day, using it thoroughly, and night and morning smear on an ointment of Yellow Oxide Mercury grs. x. to Vaseline ʒj.

This ointment acts best strong in children and weaker in adults. If separate pustules appear, it is sometimes best to touch them with Nitrate of Silver-stick.

Ophthalmia Tarsi, often results from errors of refraction, which must be corrected.

CATARRHAL CONJUNCTIVITIS.

The conjunctiva covering in the globe of the eye, and lining the lids, is exquisitely sensitive, and though abundantly protected, is frequently exposed to the causes of inflammation. Temporary inflammation is often seen as the result of dirt or sand in the eye, or even exposure, but very soon disappears with rest. The disease we are now describing may arise from cold, sudden changes of temperature, extension of inflammation from the mucous membrane of the nose, or from inoculation with the secretion of a diseased eye. This last cause should be carefully guarded against, as we not unfrequently observe whole families attacked with the disease from the indiscriminate use of towels.

SYMPTOMS.—The disease commences with a sensation of dryness and smarting of the eyelids, with a feeling as if dirt or sand had got into the eye, and it is with difficulty that the patient gives up this idea, the impression is so strong. In a short time the eyes seem tumid and swollen, the unpleasant sensations have increased, and a more or less abundant secretion, sometimes opaque and puriform, is established. If the eyes are now examined, the palpebral conjunctiva will be found red and swollen, and more or less reticular redness of the ocular conjunctiva. As the inflammation progresses, the last portion of the conjunctiva becomes more completely involved, and we sometimes observe ecchymosis or extravasated blood under it. In a still severer form the conjunctiva is remarkably injected, and swollen to the point where it passes

into the cornea, so much so occasionally as to partially cover up this part of the eye; this swelling is termed chemosis. Catarrhal ophthalmia is always periodic, the exacerbation occurring in the evening, and sometimes attended with headache, the pain and itchiness cease a short time after going to bed, and the patient sleeps well, but it reappears in the morning on attempting to use the eyes.

In many cases the disease continues for a week or ten days, and then gets well without further change; but in some cases it is more persistent. Sometimes we notice a small blister on the ocular conjunctiva, which, rupturing, forms an ulcer, constantly throwing off an abundant puriform secretion; it may attain the size of a half dime, or be even larger than this, and is usually very painful. The cornea is sometimes obscured and hazy from the inflammation, and in that variety of the disease termed phlyctenular, has a tendency to ulcerate. This last form of the disease occurs most frequently in children and young persons, and is usually connected with a scrofulous constitution. The symptoms are, marked pain and intolerance of light, free secretion of tears, deep redness of the eyelids, but slight of the ocular conjunctiva, sometimes but three or four vessels being seen to pass across to the cornea. Soon we notice the production of one or more blisters on the cornea, which discharging, forms an ulcer; this may increase in size until it involves a considerable portion of the cornea, or it may rapidly increase in depth until it perforates it, and causes a discharge of the aqueous humor. In some of these cases, the phlyctenula are absorbed, leaving a small, white spot, called albugo; or a cicatrix results from the ulceration, called leucoma. If the ulcer penetrates the cornea, the iris is almost always thrown forward by the escape of the aqueous humor, and passing into the opening becomes adherent, and is termed synechia anterior.

DIAGNOSIS.—Catarrhal conjunctivitis is usually recognized with ease; the inflammatory action commencing in the palpebral conjunctiva, and subsequently extending to the ocular portion, with secretion of muco-pus, are the characteristic symptoms. In phlyctenular ophthalmia, there is inflammation of the conjunctiva, but the disease is principally confined to the cornea; the appearance of the small vesicles or ulcers in

the cornea marks the distinction. That form described as pustular, is marked by the formation of pustules, terminating in ulcers in the ocular conjunctiva, near the cornea.

PROGNOSIS.—In the milder forms of catarrhal ophthalmia we usually succeed in arresting the disease in a week or ten days, but if allowed to progress, or badly treated, it may endanger the integrity of the eye and last for months. The phlyctenular form is more difficult to treat, and not unfrequently leaves the marks already mentioned. Pustular ophthalmia is usually very perverse, but with care may be managed so as to leave no bad result. Either of these forms may become chronic, and develop structural change which will impair vision to a greater or less extent.

TREATMENT.—If the reader will bear in mind the fact that inflammation of the structures of the eye is to be treated in all respects the same as inflammation of any other organ or part, he can hardly go astray. We do not take into consideration the amount of tissue involved, but treat a conjunctivitis as we would a pneumonitis or hepatitis. If we think of the physiological method, we will administer the sedative, use the means to facilitate waste and secretion, correct the wrong of innervation, and improve the nutrition of the body. Going further than this, we will examine the patient carefully with reference to special indications for remedies, and employ those thus indicated. The reader is again referred to the general consideration of inflammation for this complete treatment.

But there are certain remedies more commonly indicated in these cases of conjunctivitis, which may be named here. Aconite is very generally indicated by the *small* pulse; Rhus is indicated by the burning pain in the eyes, and by the frontal headache; Macrotys by the deep, tensive pain; Bryonia by the deep pain from forehead to occiput; Apis by the itching and burning; Belladonna by the dull pain in the head, the patient being drowsy; Apocynum by the fullness of the conjunctiva, marked chemosis and œdema of eyelids. There are cases in which the emetic is as clearly indicated as in a case of bilious fever; cases in which the fullness of tissue and venous fullness call for Podophyllin; in which the pallid

tongue calls for a salt of Soda; the *dirty* pallid tongue calls for Sulphite of Soda; the dusky coloration of tongue, and even of conjunctiva, calls for Baptisia; just as there are cases in which the periodicity of the disease calls for antiperiodic doses of Quinine.

In the early stage of the disease the eyelids (outside) may be washed with a lotion of—℞ Tincture Aconite ℥j, Tincture Veratrum ℥ij., Water ℥iv.; and in some cases it may be used with advantage at any stage of the disease. In a later stage, when there is less irritation, a solution of Iodide of Ammonium, ℥j. to water ℥ij., with a little Aconite or Veratrum, may be used in the same way.

Taking the average case, I believe I should prefer a lotion of Salicylic Acid as the collyrium. ℞ Salicylic Acid, Borax, aa. gr. x., distilled water ℥iv. I do not like the old-fashioned application of Nitrate of Silver. Instead, a solution of Sulphate of Zinc in Rose Water, two to four grains to the ounce, will be found a safe remedy. When the circulation is very feeble, Belladonna may be added to the wash, or we may use a lotion of Atropia, gr. j. to water ℥iv.

Prof. Howe recommends Nitric Acid (a pine stick being wetted and wiped dry) as an application to phlyctenulæ and ulcers (Diseases of the Eye, page 68).

In mild cases of catarrhal conjunctivitis, the Boracic Acid lotion (℥ij. to water Oj.,) using the lotion three times a day, and getting the wash well in the eye, is all that is required.

When there is much discharge, astringents answer a better purpose; as, Hydrastis or Pinus Canadensis with sufficient water; as, Pinus Canadensis ʒss, Water ℥j; a wash of Alum gr. iv., Water ℥j., Sulphate Copper drops—Sulphate Copper gr. ij, Water ℥j.

PURULENT CONJUNCTIVITIS.

Purulent Conjunctivitis, or Egyptian ophthalmia, is not of frequent occurrence in this country, though when met with there are generally several cases, as it is very contagious. It

frequently affects one eye at a time, but both may be involved. It commences with an itching and feeling as if there were particles of dirt in the eye, and adhesion of the lids in the morning. In the course of one or two days this itching has become very severe, and is attended with a smarting, burning pain, and the discharge of a thin acrid fluid from the eye, which runs over the lid and produces smarting. On everting the lids we find the conjunctiva swollen and reddened, and usually but slight symptoms of inflammation of the ocular conjunctiva. As the disease progresses, the secretion becomes thicker and purulent, and is still acrid or irritating; the patient feels very markedly the sensation as if sand was in the eye, though the pain is not increased by exposure to light. In some cases the ocular conjunctiva is quickly involved, and there is free effusion into the areolar tissue; there is marked chemosis, which occasionally almost buries the cornea. The chemosis sometimes extends to the lids, which become very much swollen; and the mucous membrane being everted it presents a very alarming appearance.

The purulent secretion continuing for twelve or fourteen days, diminishes in quantity and is less acrid, and on examination we find that the chemosis and redness are disappearing, and the patient can make use of his eyes, though they are still weak; this we would call a favorable termination. In other cases the inflammation is more severe, the eyes are swollen so that it is impossible to open them, and there is occasionally severe pain about the orbit, and over the frontal sinuses, and shooting pains through the globe of the eye. For days or weeks the eye continues in this condition, throwing out an abundant purulent secretion, and when the inflammation does subside, we find that it has left most serious lesions. Bursting of the cornea, and discharge of the aqueous humor is not unfrequent, vision being entirely lost, and the eye in a staphylomatous condition. In other cases there is more or less opacity of the cornea, obstructing vision, and in the most severe cases the cornea gives way, and the aqueous humor is discharged, and this is followed in a few hours by the crystalline lens, and a considerable portion of the vitreous humor.

DIAGNOSIS.—We diagnose this form of conjunctivitis, by the free purulent secretion, the marked swelling and tumefaction

of the eyelids, and their stiffness and immobility. There is only one form of inflammation that could be mistaken for it, and that is gonorrhœal ophthalmia, and in this case the diagnosis will many times be made easy by the previous history of the case, and the fact that but one eye is involved.

PROGNOSIS.—"When the inflammation is of an active character, and not modified by any constitutional peculiarity, early and proper treatment promises success. When the inflammation is of a torpid character, and when the constitution is scrofulous, it yields less readily to treatment, subsides less quickly and perfectly, and fixing itself in the structures of the eye, is apt to produce degeneration of it. In erethetic, irritable cases, the prognosis is also unfavorable, but less so than in torpid cases."—(Jones.)

TREATMENT.—Examine this case carefully with reference to the remedies indicated. A common case, with full, pallid dirty tongue, will be relieved by the Sulphite of Soda, as one with burning pain in eyes and sharp pain in forehead, will be with Rhus. Quinine inunction is frequently an excellent thing, and some of the restoratives and tonics will be indicated in the larger number. But in so far as internal remedies are concerned, there is not much difference between this and the preceding case. Though I have not used it, I would suggest the Salicylic Acid as a wash for the eyes.

Dr. Mackenzie remarks that our main dependence will be on our local remedies, "for if none are employed, or only improper ones, the eyes may be lost, notwithstanding the best general treatment." "It may appear to some paradoxical that the local applications in this disease should be alternately soothing and stimulating. Were we to trust to either sort alone, we should endanger the eyes. Soaking them constantly with tepid water, or laying emollient cataplasms over them, would be almost certain destruction; and on the other hand, a perpetual succession of stimulating solutions and salves would be no less detrimental."

The first thing to be done in a case of this kind is to warn the patient about the contagious nature of the disease, so that no other member of the family may contract it through the common agency of wiping on same towel, washing in

same basin, etc. If only one eye is affected, bandage the other one to protect it from the disease.

The use of the cold compress is very soothing and grateful to the patient. Have several pledgets of cotton lying on a block of ice or in ice-water, and lay these on the inflamed eye, changing often. The use of a 2% solution of Cocaine will save much pain, and help to subdue the inflammation.

In very severe cases, the cornea is in danger of sloughing away, caused by the pressure of the inflamed eyelids against the eyeball, thereby strangulating the cornea.

In such cases the eye can only be saved by Canthotomy, slitting the outer canthus of the eye, thereby lessening the great tension and overcoming the strangulation. This is quite painful, and should be done under the use of Cocaine.

When corneal ulceration manifests itself, a solution of Atropine Sulphate (gr. iv. to water ℥j.), should be instilled into the eye once or twice a week by the physician himself.

This disease often occurs in children a few days old (ophthalmia neonatorum), caused by contagion when passing through the passages of the mother.

Here, cleanliness is the chief constituent of a cure, the matter being removed from the child's eyes as soon as it forms. Every hour, or oftener, the eyes may be washed out with an astringent and antiseptic solution of Alum and Boric Acid. If Nitrate of Silver is used it must be employed with care, or more harm is done than good. Both eyelids being everted and brought together so that none of the application can get on the cornea, then the application (grs. v. to x. to water ℥j.) is made with a camel's hair brush, and, finally, neutralizing the remainder which may be on the lids with a solution of common salt.

This is the usual way in which the Nitrate of Silver is applied. There is often much fever accompanying the disease, and the special sedatives are necessary.

If there is marked chemosis threatening the integrity of the eye, it is good practice to incise it, and thus lessen the pressure; scarification of the conjunctiva sometimes becomes necessary, and is attended by alleviation of all the symptoms; and Mackenzie recommends that we snip away any loose folds of conjunctiva that project from between the eyelids.

Dr. Hill recommends the Tincture of Myrrh in the purulent

ophthalmia of children, and relates the following case to illustrate the success of the practice: "It was allowed to run on four or five days before I saw it, and a shocking sight it then was; instead of eyes, there appeared protruding out beyond the bridge of the nose, two huge, fiery globes—mere red, fungous-looking masses, nearly as large as hen's eggs. The thickening and change in the mucous coat was such that nothing like cornea was to be distinguished. It was now all one suppurating surface, and the amount of matter discharged was surprising. After attempting to allay the violence of the symptoms by various other means for two days, I took the saturated Tincture of Myrrh, and with it saturated the monstrous looking eyes. I completely filled them with the fluid, and then laid a cloth over them wet and dripping with the same. The child cried lustily for a few minutes, but soon became easy and fell asleep.

CHRONIC CONJUNCTIVITIS.

All forms of inflammation of the conjunctiva may become chronic either by want of attention or improper treatment; and in many of these cases the patient's life becomes a burden from the constant suffering and inability to use the eyes. Some forms of the disease may continue for years without so affecting the structure of the eye as to destroy vision, and many of the severest cases are amenable to treatment.

A very common form of chronic sore eyes is that in which there is slight injection of the conjunctiva, some secretion of muco-pus, epiphora, feeble vision, and intolerance of light to such an extent that sometimes the patient can not go in the open air without the eyes shaded, and in some cases, can not bear the light at all. In other cases we find associated with this condition a tendency to the formation of phlyctenula, or there may be but a single ulcer on the cornea, which may continue with but little alteration for weeks or months. In other cases there is a tendency to the formation of small pustules on the ocular conjunctiva, the inflammation being re-lit upon slight exposure.

The most persistent form of the disease is granular conjunctivitis, which may last for years, the patient having partial use of his eyes, but being unable to follow any business from

feebleness of vision and irritation attending any exertion of the eyes. It may result from catarrhal or purulent ophthalmia, especially if neglected or improperly treated. On examining the eyes we find that they have an unnatural fullness, which is caused principally by thickening of the mucous membrane of the lids. On everting the eyelid, we find the conjunctiva irregular on its surface, what are termed granulations, being from the size of the head of a pin to that of a hemp seed. It presents a fungous and spongy appearance to the sight, and gives the same sensation when touched. Frequently there is an uniform deep redness of the entire surface, seeming like red velvet, or the fungous enlargements being in patches, they are reddened while the intervening space is natural in color. In other cases, it seems to be mottled with small, yellowish points. "Superficial vascularity, thickening and opacity of the upper half of the cornea, often exist with granular conjunctiva, and have been attributed to the friction exerted on it by the rough surface. This does not, however, appear to be the case, for vascularity, thickening and opacity of the conjunctiva-cornea are met with in cases in which granular conjunctivitis does not exist, and may be absent in cases in which granular conjunctiva is much developed. The morbid condition of the cornea just mentioned is rather the result of the extension of the same inflammation which first gave rise to the granular conjunctiva, though there can be no doubt that it is kept up and aggravated by the friction exerted by the granular surface of the palpebral conjunctiva."—(Jones.)

The general health is variously affected in these different forms of chronic conjunctivitis. The first variety is frequently kept up by dissipation, imprudence in eating, damp and ill-ventilated dwellings, and in my opinion, by want of cleanliness, and cutaneous irritation or disease consequent upon it. In phlyctenular ophthalmia the general health is much depressed, and the various functions are imperfectly performed. It is said to be scrofulous, but my observation has shown me but two instances in quite a number of cases. It may, however, be always considered as a disease of debility, and indicative of imperfect nutrition. The pustular form of the disease is almost invariably associated with some constitutional cachexia—two cases in my practice were connected with gonorrhœa, three with chronic diarrhœa, and one with syphilitic

rupia. Granular conjunctivitis may occur with depression of the system, or with a full habit of body.

TREATMENT.—In the first form of the disease we would regulate as far as possible the patient's habits, stimulate secretion from the skin and kidneys, using the bath thoroughly and frequently. The bowels should be kept in a soluble condition, and this may be usually accomplished by the administration of the small pills of Podophyllin 1-20 grain, Phos. Hydrastia ¼ gr., and the other secretions stimulated at the same time. The Compound Pill of Hydrastine, quinine and Podophyllin, may be used in preference to the remedies named, if there is much debility. If there is any reason to suppose that the disease is connected with rheumatism, we would give the remedies heretofore named for this disease. Macrotys, Rhus, Bryonia, Apocynum, and Phytolacca, may be named; the proportions being gtt. x. to water ℥iv., and may be given in doses of a teaspoonful four or five times a day. Counter-irritation is among our most important curative measures, and hence, in many cases I prefer the fly-blister, first before and them behind the ears, so as to make it perpetual.

The same treatment that is used in acute conjunctivitis is often applicable to the chronic—the Boracic Acid lotion together with some astringent.

In some cases where the circulation is sluggish, bathing the eyes several times a day in hot water is very beneficial, especially if there be a corneal ulcer in connection therewith.

The vegetable astringents are excellent in these chronic inflammations. Have the patient avoid cold winds and wet weather, and expose himself as little as possible.

Errors of refraction must be corrected.

Dr. Hill's method of using the Tincture of Myrrh or Capsicum, and though it is very painful, it is often effective.

In chronic phlyctenular ophthalmia, it is necessary that the general health should be improved, and we bend all our means to the accomplishment of this object. In some cases we will find a coated tongue and feeble digestion, with torpidity of the entire system; here a thorough emetic will not only be of immediate benefit, but will prepare the way for other medicines. The Compound Tincture of Corydalis, with Iodide of Ammonium, has seemed to answer better in my hands than other alteratives, and I have usually associated with it, Quinia,

Hydrastine, and Iron. In some cases, Cod-liver Oil and Rye Whisky has seemed to benefit the patient in every respect, improving the appetite and the power of digestion, and in proportion to this the condition of the eye. The Salt-water bath with brisk friction, especially to the spine, is an important aid. The patient should have a full and nutritious diet, and occasionally a small quantity of malt liquor, is serviceable. Open-air exercise is sometimes useful, especially in cases where but one eye is affected, as it can be covered to prevent irritation.

The cause of this disease is often readily seen, and will suggest the best treatment.

In children, you generally find it associated with a scrofulous habit of body, or the result of improper feeding; the child partaking largely of pies, cakes and candy; and in men oftentimes due to dissipation. Righting this wrong is the first thing in the treatment.

Then after the more acute symptoms have passed away, a certain amount of irritation must be produced to cause the absorption of the phlyctenula. This is best produced by the insufflation of Calomel into the eye, or the use of Yellow Oxide of Mercury ointment.

Patients suffering from this disease are subject to successive crops of phlyctenules, but by correcting any error of refraction, and looking after the diet, they can generally be checked.

This form of conjunctivitis comes in two types, the acute and the chronic, the treatment differing widely.

1st. The acute is less frequent, and generally due to contagion, presenting all the phases of active inflammation, the large, spongy granulations and increase of tissue.

2d. Is sometimes the acute having changed to chronic; but most frequently the patient noticing some pain in his eyes presents himself, and upon making an examination you find the disease far advanced, perhaps five years standing; this is the case of atrophy and cicatrization.

1st. When the granulations are large and prominent, squeeze them, either between your thumb-nails or with forceps made for this purpose. If granulations are small and hard and numerous, scarify and squeeze.

The use of Sulphate of Copper and Nitrate of Silver is

permissable, so far as to cause enough irritation and inflammation to aid in the physiological process of removal, but they must not be carried to the point of destruction of tissue. Large quantities of cicatricial tissue tend not only to keep up a constant grating on the cornea, producing haziness, but also trichiasis and entropion.

RHEUMATIC OPHTHALMIA

In the preceding affections the conjunctiva was the seat of the inflammation; in this form it is situated in the sclerotic coat. Like other forms of rheumatism, it is produced by cold, sudden atmospheric changes, dampness, etc., but it does not seem to attack persons of a rheumatic diathesis more than others, and a metastasis of the disease from or to the eye is never observed. Hence, it must be confessed that there is no other reason for the name than that it resembles rheumatism in its exciting causes, and in its accompanying pain and exacerbations.

SYMPTOMS.—Rheumatic ophthalmia makes its appearance with a sensation of heat and dryness in the eye, and stinging, darting pains passing from the globe of the eye into the orbit, and sometimes to the forehead, temples and face. When the disease becomes fully developed, this pain is very severe, and seems to involve the entire orbit, but is usually the most intense about the superciliary ridge. It never ceases entirely, but becomes much modified in the morning, and very intense in the evening and fore part of the night. Occasionally the pain is of a deep, pulsating or throbbing character, and sometimes tearing or tensive. Most generally we find constitutional symptoms developed, the secretions being arrested; the skin especially is dry, and there is considerable excitation of the pulse during the paroxysms.

In pure rheumatic ophthalmia we find the lids entirely free from disease, and no muco-purulent secretion. The redness is confined to the globe of the eye, and is not in the conjunctiva, as is readily determined by moving it, when it is seen to pass over the dilated vessels. The redness is also different, and is seen to consist of fasciculi of vessels advancing in radii to the edge of the cornea. Most generally the iris is slightly discolored, greenish, and its movements are sluggish; the

pupil is contracted, and but little changed by light. Dimness of vision is always present, depending upon a haziness of the cornea and pupil; but then there is little if any intolerance of light. In many cases the disease assumes a catarrho-rheumatic character, in fact, these are of far more frequent occurrence than pure rheumatic ophthalmia. In this case we have the symptoms of rheumatic ophthalmia associated with the catarrhal, and of necessity a very painful and severe disease. Here, the conjunctiva is involved, and it is difficult to distinguish the local symptoms of inflammation of the sclerotic, and we are usually guided by the character of the pain, and the evidence of partial iritis.

PROGNOSIS.—This form of ophthalmia yields readily to treatment, if taken in time, but if allowed to progress, or badly treated, the pupil may close, or the anterior crystalline capsule be left opaque.

TREATMENT.—Let the patient understand that the disease is sufficiently grave to demand perfect quiet in his room, which should be sufficiently darkened to prevent irritation from light. Put him upon the use of the proper sedative—Veratrum if the pulse is large, Aconite if it is small—associated with any remedy that is specially indicated. The remedies to be thought of in this case are the Macrotys, Rhus, Bryonia, Phytolacca, Gelseminum, Belladonna, and Apocynum, selecting them as we would in other cases. The hot stimulant foot bath is frequently of benefit, and when the patient is brought under the influence of the sedative, we may use the Acetate or Citrate of Potash to stimulate increased secretion of urine.

In some cases the pallid tongue will call for a salt of Soda, and in others the pallid dirty tongue will ask for Sulphite of Soda. Whilst I do not believe in physic, the patient will do better if he has a motion from the bowels every day. This may be sometimes secured by the Phosphate of Soda, Sulphur and Sulphate of Soda, or by the small Pill of Podophyllin and Phosphate of Hydrastia.

In some cases I am satisfied that benefit will be obtained from—℞ Salicylic Acid grs. xv, Acetate of Potash ʒij.; a teaspoonful every three hours. In some cases Iodide of Potash, and in others Iodide of Ammonium, will prove useful, whilst tonics and restoratives will be of benefit as the case advances.

Counter irritation before and behind the ear, and to the nape of the neck, is sometimes beneficial, but not to as great an extent as in the preceding cases; it will be used with more benefit in the decline of the disease. Eye-waters are useless, and the stimulant ones absolutely injurious in this form of the disease. The eye may be washed in tepid or warm water, and a dry compress applied lightly, or in some cases fomentations of warm water, a soft sponge being used for the purpose, will be of advantage. To relieve the circum-orbital pain, nothing will be more efficient than Extract of Belladonna rubbed up with Tincture of Opium, and applied around the eye. It is very necessary that the pupil should be kept well under the influence of Belladonna, to prevent structural change. Nothing so controls the inflammatory action in this disease as the remedy just named; if used with the Laudanum, that will usually be sufficient; if not, the lids may be painted with the softened extract.

In cases of catarrho-rheumatic ophthalmia, we would use the general treatment recommended for this disease, counter-irritation and the local application of Laudanum and Belladonna to relieve the pain. All irritant collyria must be discarded, and instead we would employ Belladonna with Gelseminum, or Aconite, and warm fomentations.

IRITIS.

Iritis has been divided into several varieties by authors, but without any good reason that I could ever perceive. We might distinguish the syphilitic with advantage, and that occurring in scrofulous ophthalmia, but the others may be grouped under the simple head of iritis. We have already seen that partial iritis was developed in that form termed rheumatic, and as the idiopathic iritis bears a very close relation to it, it is generally termed rheumatic. The causes of the disease are the same as those giving rise to rheumatic ophthalmia, though it sometimes comes on very insidiously, and without apparent cause.

Symptoms.—Dimness of sight and fatigue in using the eye is generally the first symptom, and may continue for several days before the disease is fully developed. Soon the globe

becomes sore when pressed upon or when moved, and injection of the circum-corneal vessels is noticed. The pain now becomes severe, with a feeling of extreme distension of the eyeball, and dull pain extending to the orbit and forehead. There is much intolerance of light, with increased secretion of tears when the eye is exposed. There is usually considerable fever, with coated tongue, constipated bowels, dry skin and hard pulse; it is remittent in character, coming on in the evening, with an increase of pain, as in rheumatic ophthalmia. Dimness of vision and haziness become very prominent when the disease is fully developed.

If we examine the eye, we will notice a redness situated beneath the conjunctiva, and formed of vessels passing in radii toward the cornea; usually it is not deep, but in some cases the color is increased by more or less involvement of the conjunctiva. The pupil is contracted, and the motions of the iris impaired, and its color changed: "first, in the lesser circle, which becomes of a dark hue; and afterwards in the greater, which grows green, if it had been grayish or blue; and reddish if it had become dark-colored. This change of color is a never failing index of the substance of the iris being inflamed, and is apt to continue after all the other symptoms of iritis have been subdued." When the disease is severe, the pupil loses its circular form, and becomes oval or irregularly dentated.

Syphilitic iritis can rarely be distinguished from that just described; the fact of a syphilitic taint existing is the reason for the division, and in these cases iritis is almost invariably dependent upon the syphilitic poison. Some writers base a distinction on the scattered or furuncular appearance of the redness for some time, and upon the rusty color of the iris near its pupillary margin. The detection of syphilitic disease makes the diagnosis certain. Iritis may come up during a protracted attack of gonorrhœa, and hence has been described as gonorrhœal iritis. It is not produced by inoculation as in gonorrhœal ophthalmia, but by constitutional infection, as in the case of gonorrhœal rheumatism and synovitis; it has no distinctive features by which it may be determined from other forms.

"Chronic primary scrofulous iritis is characterized by the age of the patients, who are generally children under puberty;

its slowness compared with the progress of the other species; the disease being generally attended with but slight pain, the inflammation in a great measure confined to the serous covering of the iris, and productive of very little lymphatic effusion. In such cases, zonular effusion of the sclerotica, greenness and darkness of the iris, and fixedness of the pupil, may often be observed for many weeks together, without any further morbid change, so slow is the progress of the disease. There is also, in many cases, little or no pain or fever, and the patient often sleeps well. At length the pupil is observed to be tagged to the capsule, the capsule becomes partially opaque from effused lymph, while, the disease spreading to the retina, vision is more or less seriously impaired. Allowed to proceed in its course, the disease is now attended with more pain in and around the eye, and sometimes with considerable intolerance of light. The iris bulges forward toward the cornea, the pupil is obliterated, and the cornea and anterior half of the eye become convex; myopia, hardness of the eye and amaurosis, follow more or less promptly. In some cases the eyeball becomes baggy and atrophied. In other cases, inflammation and thinning of the sclerotic supervene.

PROGNOSIS.—The prognosis in iritis is usually favorable, if proper treatment is adopted; but if neglected or improperly managed, it frequently results in opacity of the capsule, obliteration of the lens, or, involving the retina, produces amaurosis, or the cornea, producing opacity.

TREATMENT.—It is difficult for the patient to believe that the slight disease he can see, even though the eye is painful, demands that he should give up the use of the eyes altogether, and remain quietly in his room; but this is indispensable to success. Put the patient upon the use of sedatives, in the same dose as if it was an inflammation of the lungs; use the general bath as indicated, the hot foot bath at night to give rest; keep the bowels regular by the simplest means, and stimulate secretion from the kidneys by the saline diuretics. This is an outline of the general treatment, and the course pursued when no special remedies are indicated.

But here, as elsewhere, the special indications for remedies are to be followed. If the tongue shows the want of an acid, an alkali, Sulphite of soda, Podophyllin, or an emetic, give

it without reference to the small amount of tissue engaged in the inflammation—it may be sufficient to destroy the eye. The Macrotys is indicated by the deep, tensive, twisting, rheumatic pain; the Rhus by the burning pain, and sharp pain in the left orbit; Bryonia by the continuous pain, seeming to go through the head to the occiput; Gelseminum by the injected eye, which feels hot, flushed face and heat of scalp; Belladonna by the dull heavy pain in the eye, with drowsiness; Iodide of Potash by the leaden pallor of the tongue; Proto-iodide of Mercury, or Donovan's Solution, by the red tongue, prominent papillæ (syphilitic); Phytolacca by fullness of tissues of face, and enlargement of the cervical glands; Apocynum by fullness of tissue and œdema of the eyelids.

If the inflammation is acute, I usually employ small cups applied to the temple, and before and behind the ear, with scarification if it is thought necessary, and if this is not deemed sufficient, a small blister to the back of the neck or behind the ear. To relieve the severe circum-orbital pain, nothing will be found more efficient than Extract of Belladonna, rubbed up with Tincture of Veratrum. Vaporizing the eye and side of the head with hot water, or the employment of warm fomentations, will sometimes give temporary relief, but must not be substituted for more important remedies. *The principal objects of the treatment, and that upon which success mostly depends, is, keeping the pupil constantly dilated.* This may be effected by painting the eyelids and brow with Extract of Belladonna, rubbed up with a small quantity of water. As this is frequently objectionable to the patient from its disagreeable odor, and unpleasant sticky sensation, it may be replaced with *a solution of from one to two grains of the Sulphate of Atropia to the ounce of distilled water.* Of this a drop may be put in the eye once or twice in twenty-four hours. *Keep the pupil constantly dilated.*

In syphilitic iritis I employ the Podophyllin, associated with tonics and Iodide of Potassium or Iodide of Ammonium. We may use the remedies in the following form:

℞ Podophyllin, gr. x.
Hydrastine,
Quinine, aa. ʒj.
Extract of Hyoscyamus, q. s. M.

Make sixty pills, of which one may be given every two hours

daily, until it operates two or three times on the bowels. The remedy I have placed most dependence upon the last ten years is Iris Ver. The Iodide of Potassium may be given in from two to five grain doses every three or four hours. The local treatment will not differ from that of the preceding case.

In chronic scrofulous iritis we find it good practice to commence the treatment with a thorough emetic, and repeat it as often as the tongue becomes loaded and the appetite impaired. The tonic and alterative pill above named may be used; or we may give the Compound Tincture of Corydalis and the tonics separate. Iron in some form should be used; I frequently prescribe the Carbonate, or Citrate. Cod-liver Oil is frequently beneficial, especially in cases where the general health is much reduced. The daily use of the Salt-water bath, or in some cases using the same warm, or the wet sheet pack, following in some instances with the douche, and all with brisk friction, is an important addition to the treatment. The local measures will not be changed, though in this case permanent counter-irritation is advisable.

PHLEGMONOUS OPHTHALMIA.

Inflammation of the entire eye is not of frequent occurrence, but occasionally a case will be met with. It results most frequently from injuries, and sometimes follows operations on the eye, especially couching for cataract, and for artificial pupil. It also occurs during the progress of the eruptive fevers, small-pox, measles, and scarlatina, and may result from cold or other causes of inflammation.

SYMPTOMS.—The suffering in this disease is very severe, the pain being hot and burning, and extending through the entire eye, and to the structures contained within the orbit, and increased by movement of the eye or even the body. In addition to this, there is a deep-seated, throbbing pain in the eye-ball as if it would burst, and darting pains extending to the temples, forehead and occiput. There is generally great intolerance of light, and abundant secretion of tears. The constitutional symptoms are generally marked, and occasionally there is delirium.

On examination we will find the eyelids swollen, and the eye prominent, the edge is red, and the chemosis marked; and we will observe that there is marked tumefaction of the cellular tissue. The cornea, frequently, is more or less opaque, and there is sometimes ulceration. "In this stage the inflammation may be arrested, in which case, with diminution of the pain, the swelling of the eyelids, the prominence of the eye-ball, and chemosis subside. In proportion as the redness of the white of the eye is dissipated, any ulceration of the cornea heals, the iris recovers something of its natural appearance, but the sight remains more or less impaired, if not abolished. If this favorable turn is not brought about, but, on the contrary, the disease advances, all the symptoms become aggravated and suppuration takes place, being ushered in by a feeling of weight and cold in the eye, and general rigors. In consequence of accumulation of matter in its interior, the eye-ball becomes much distended and enlarged, so that it protrudes still more from the orbit. The cornea is infiltrated with matter, and projects from the bottom of the fossa formed by the chemosed conjunctiva. With the supervention of suppuration, the suffering not only does not abate, but actually increases, in consequence of the strong outer tunics of the eye-ball not readily yielding to the distension from the accumulated matter. At last, however, the eyeball bursts by the cornea or sclerotic giving way, and the abscess, together with blood and the humors of the eye, is evacuated. The pain, which before this was of the severest character, is now at once greatly relieved, and afterwards gradually subsides." (Jones.)

PROGNOSIS.—This is the most dangerous form of ophthalmia, and if not promptly relieved in the early part of its course, will almost certainly result in loss of vision, if not in complete loss of the eye.

TREATMENT.—Active but not debilitating measures should be employed with the first evidences of the disease. We would give the proper sedative, with such of the other remedies heretofore named as may be indicated. It is fortunate if we find a strong indication for Macrotys, Bryonia, Rhus, Apocynum, or Phytolacca, for they relieve the pain and give rest. In many cases the dirty pallid tongue calls for Sulphite of Soda, in doses of ten to twenty grains every three hours, and

in others an acid may be indicated. The use of the proper bath should not be neglected, the bowels should be kept regular, and secretion of urine stimulated by the use of the saline diuretics. Absolute rest is necessary both of mind and body, and the room should not only be darkened, but the eyes kept shaded. Cups applied to the temples and to the nape of the neck, should not be omitted, and these should be followed by cold applications, and the use of equal parts of Tincture of Aconite, Belladonna and Opium around the orbit.

The object of the above treatment is to arrest the inflammation before suppuration commences, and sometimes we will succeed. If not, warm fomentations may be substituted for the cold water dressing, the bowels kept open by a gentle purgative, and a mild diaphoretic and sedative combined, with a sufficient quantity of Opium to control pain. If there seems to be much general depression, Quinine and Hydrastine may be employed, with as much stimulus as may be necesary. If the eye-ball becomes very much swollen and painful from effusion and formation of pus, it will be necessary to puncture the cornea or selerotica to relieve the suffering, prevent entire destruction of the globe of the eye, or sometimes dangerous disease of the brain, or sympathetic irritation of the other eye. These punctures permit the escape of the aqueous humor, and lessen the distension, and at last give exit to the pus. In some cases the inflammation of the cellular tissue of the orbit results in suppuration, and in consequence the eye is thrown very much forward, and the pain is severe. If it continues, it may endanger the integrity of the brain, and terminate fatally. In this case it is necessary to open the ocular capsule, which is done by dividing the conjunctiva at the internal angle of the eye, passing the lancet close to the globe, and rather toward the lower eyelid, until it reaches the accumulation. "This being done, there is an immediate gush of serous fluid mixed with pus; the globe of the eye falls back, and the cornea becomes flaccid, showing that the cause of the excessive hardness and projection of the eye existed behind it, and not in the organ itself. In such cases the opening of the capsule ought to be had recourse to early, and not delayed until the eye is disorganized, or the patient sinking into a state of coma. The operation is simple, and is likely to save both the eye and the life of the patient."—(Mackenzie.)

OPACITY OF THE CORNEA.

Opacities of the cornea are distinguished by different names, according to their density and the character and situation of the lesion. Nebula is the slightest degree, and is most generally situated in the superficial layers, though occasionally deep-seated; sometimes it is general, and is the result of pressure, or serous effusion into the substance of the cornea. Albugo is that form of opacity in which the spot has a pearly appearance, and generally results from effusion of plastic lymph, in the anterior layers of the cornea. It usually results from phlyctenulæ which have receded without bursting. Leucoma is an opaque cicatrice closing an ulceration; it has usually a contracted and circumscribed appearance, and is depressed in its center

TREATMENT —" All the three kinds of speck, nebula, albugo and leucoma, have a natural tendency to disperse as soon as the disease giving rise to them subsides or is removed, and whether they depend on primary inflammation, spreading to the cornea, or secondary inflammation of that part arising from the irritation of inverted eyelashes or granular conjunctiva. We must, then, in every case, endeavor to remove the ophthalmia or the mechanical irritation on which the opacity depends, assured that if we succeed in this, nature, by the process of absorption, will accomplish the whole amount of recovery which is possible. In children and young persons, many very dense and extensive opacities are removed in the natural process of growth, which would be quite immovable in adult life."—(Mackenzie.)

Patience and perseverance are the great elements of success in these cases, and abundant time, from three months to as many years, is necessary to the accomplishment of the purpose. The inflammation should be entirely removed in the manner heretofore named, and if the person is scrofulous, this should be counteracted as much as possible, and the general health improved. Frequently this is all that is necessary, the opacity disappearing as the inflammation is removed. If, after this, we deem it necessary, we prescribe a mildly stimulant collyrium, as, Wine of Opium, pure or diluted, Gelseminum as heretofore recommended, Sulphate of Zinc or Nitrate of Silver.

from two to eight grains to the ounce of water, and Glycerine, are some of the means that may be made use of. The Bi-sulphide of Carbon may be used as heretofore directed, as a stimulant to the eye, and will answer a good purpose. In other cases, all that is necessary is to give nature sufficient time to remove the deposit; and to prevent injurious meddling with the eyes, we will in these cases prescribe some mild and grateful application, simply to occupy the attention of the patient and prevent discouragement.

AMAUROSIS.

Under the head of amaurosis formerly were grouped all those affections in which the vision was impaired, without outward evidence of disease. The ophthalmoscope has now, however, brought to light various diseased conditions of the internal parts of the eye, and somewhat restricted its application. Feeble or imperfect vision, or complete loss of the eyesight, there being no perceptible cause for it, is amaurosis Dr. Jones enumerates three conditions giving rise to this affection, and upon which it essentially depends: 1st. Congestion of the optic nerve and its effects. 2d. Exhaustion of the optic nervous apparatus. 3d. Pressure on some part of the optic nervous apparatus. The causes giving rise to the first are: exposure of the eyes to strong heat and light in those who work before large fires, etc.; over-exertion of the sight; forced exertion of the body while stooping the head, especially in plethoric or drunken persons; pregnancy; sudden suppression of discharges, the menstrual, perspiratory, hemorrhoidal, purulent, etc.; gastro-intestinal irritation; irritation of the nerves of the fifth pair; passions of the mind. In the second case, it is caused by great losses of blood, excessive secretion, protracted suckling, seminal losses, from the depressing emotions, and from low and exhaustive diseases. In the third case, there will usually have been symptoms preceding the loss of sight, indicating the character of the affection; though in some cases, as when it results from the presence of a clot or other formation within the cranium, the amaurosis may have been the first symptom.

Symptoms.—In many cases there are no symptoms of disease, either of the eye or brain, further than a gradual loss of vision.

it seeming as if a film was slowly forming before the eye. In others the loss of sight is sudden, and more or less complete. While, in a third class of cases, the loss of vision is gradual, and attended with pain in the head, dizziness, vertigo, etc., indicating disease of the brain. In some cases of partial amaurosis, we find that vision is better one day, and worse another, or that objects are better seen in one direction than another, or when moved before the eyes; sometimes in a bright light, at others in a dull light. Occasionally there will be ocular spectra, muscæ volitantes, double vision, confusion and distortion of objects, etc. If we examine the eyes closely, we will find the pupil more or less dilated, and but slightly susceptible to light, though in some cases it is as sensitive as in health.

DIAGNOSIS.—We diagnose amaurosis from cataract, by the fact that the opacity is easily recognized, the movements of the pupil are natural, and vision is better in a dull light; from inflammatory disease of the internal tunics of the eye, by the absence of pain and intolerance of light, and by the immobility of the pupil. Amaurosis is distinguished from glaucoma by the extreme hardness of the eye, the persistent pain, and peculiar, greenish-opaque appearance.

PROGNOSIS.—In the first case the prognosis is far more favorable than in the other two, for if seen early, and the exciting causes can be avoided, we may hope to give relief. In the second and third cases we may relieve some few, but the majority are incurable.

TREATMENT.—As will be noticed, there is a marked difference in the pathology of these cases, and consequently there will be great difference in the treatment. When we have reason to believe that it results from congestion, we would give brisk, stimulant purgatives, use cups around the eyes, counter-irritation to the spine, and alkaline diuretics. If of some duration, we would employ the tonic and alterative plan recommended previously, with counter irritation before and behind the ear, and to the nape of the neck. In addition we may use the Nux Vomica and Strychnia with advantage, and in some cases Electricity. In the second class of cases, we would adopt a tonic and sustaining course of medicine, with Cod-liver Oil, the bitter tonics, Iron, Sulphur, and Phosphorus. Here we may occa

sionally obtain the most marked beneficial results from the use of Nux Vomica, Belladonna, Ergot, etc., as named under the head of paralysis. Electricity may also be employed with some advantage, a gentle current being passed from the occiput through the eye, the anterior pole being covered with a piece of soft sponge, and applied directly to the eyeball. If the amaurosis has resulted from pressure, it may, if from a tumor, be removed by an operation; but if within the cranium, we will have to treat the case according to the indications as they may be developed.

GLAUCOMA.

This name is applied to a peculiar disease of the eye, in which it presents a greenish appearance, deep behind the pupil. It usually comes on slowly, requiring years before it involves the structure of the eye so as to produce complete loss of vision; in other cases these changes take place in a few months. The causes of glaucoma are obscure, as is also its patholgy. Some have contended that it was dependent upon a chronic inflammation of the internal structures of the eye, while later observers, especially Mr. Hancock, believe it to be due to obstruction of the circulation by spasmodic or tonic contraction of the ciliary muscle, or as it is usually termed, ciliary ligament. It most usually commences after middle age, though occasionally cases are seen between the ages of twenty-five and forty.

Symptoms.—The symptoms are variable and the disease seems to have no connection with the general health of the patient. In acute cases there is a more or less sudden accession of deep-seated, tensive pain in the eyeball, which is seen to be somewhat injected, and is hard, when pressed upon with the fingers. The pupil is irregularly dilated, and the field has a peculiar muddy appearance, and vision is more or less impaired. If not promptly arrested it gradually passes into the chronic form, with such structural changes as ultimately destroy vision. In the chronic form of the disease it may have been progressing for months or even years without attracting attention, though sometimes amaurosis results in the first stages, and before the hardness and greenish opacity

is much developed. In the second stage of the disease vision gradually declines, but without pain or any external marks of the disease. If we examine the eye closely, we will find the greenish, muddy appearance well marked, and the eye hard to the touch. In the third stage, we have immobility, and unequal dilatation of the pupil, a varicose condition of the external vessels, and marked hardness of the eye on pressure. There is also, frequently, muscæ volitantes, fiery and prismatic spectra, and ocular delusions. "In this stage the choroid is inflamed; effusion takes place upon its internal surface; the retina is compressed; the vitreous tissue is disorganized, and superabundant watery secretion comes to occupy its place. For a time the eye may continue sensible to objects placed to one side or the other of the patient, while in every other direction nothing is distinguished." In a later stage the crystalline lens becomes opaque, and pressing forward through the pupil touches the cornea, which, being irritated, ulcerates and gives way, permitting the escape of more or less of the contents of the eye, which becomes shrunk and atrophied.

PROGNOSIS.—The prognosis in glaucoma is very unfavorable; except in the first and second stages there is no chance of arresting the disease. Even when it appears in but one eye, we have reason to suppose that the other will also be involved.

TREATMENT.—The treatment of Glaucoma will not differ much from that named for iritis and phlegmonous ophthalmia. We examine the patient carefully, following the indications for special remedies. In some cases the small dose of Podophyllin and Phosphate of Hydrastia gives marked relief, and in others we find advantage from the Iodide of Ammonium. The skin should be stimulated to action by the use of the warm or cold bath, as seems best adapted to the case. In the acute affection these means should be thoroughly used. Rest to the eyes is of absolute importance, and to remove excitation we would use the irritating plaster or other counter-irritant. The pain in the eye may sometimes be relieved by the local use of Aconite and Veratrum around the orbit; if not, then by the hypodermic injection.

Three operations have been performed for the relief of glaucoma, two of which may be employed in the early stage of the disease. They are, first, iridectomy, or the removal of

a portion of the iris, either by an incision through the cornea or sclerotica; and secondly, the division of the ciliary ligament or muscle. The third, or extraction of the lens, has not been attended with success.

CATARACT.

Opacity of the crystalline lens is called cataract, of which two varieties are now described, the *hard* and *soft*. The causes of cataract are imperfectly known, but they are such as give rise to mal-nutrition of the lens. No pain attends its formation, and the patient is sensible of the disease only by the continuaily increasing loss of vision. For some time it will be noticed that the patient can see better in a subdued than in a bright light, and at last only in a darkened room, or in the evening. In some cases vision is almost entirely lost, the person only being able to distinguish day from night. We frequently find but one eye affected, and the other may remain sound through life, though it is usually affected sooner or later. Usually there is but little difficulty in its diagnosis, the pearly appearance of the lens, the perfect mobility of the pupil, some degree of vision in a dull light,and the history of the case are sufficient. The only disease with which it could readily be mistaken is glaucoma, and that is a very rare affection. Its treatment is entirely surgical, no remedies having any influence over its formation or progress.

DISEASES OF THE LACHRYMAL APPARATUS.

The lachrymal gland is so protected within the orbit that it is rarely the seat of disease. Inflammation sometimes occurs, and is marked by pain in the region of the gland and dryness of the eye from arrest of secretion. When the inflammation subsides there is usually too free secretion and epiphora, but this soon subsides. It should be treated as any other inflammation.

Inflammation of the lachrymal sac is of frequent occurrence, and requires care in its management. It makes its appearance usually as a diffused, erysipelatous-like redness and swelling of the parts near the internal canthus, with deep-seated pain, and more or less irritation of the conjunctiva, increased lachrymation, and passage of the tears over the eyelid. This inflamma-

tion continuing for some days, the parts become much swollen and very painful, and at last pus having formed, it discharges through the integument. In some cases the pus finds its way through the lachrymal canals by pressure, and the inflammation becomes chronic, but without the formation of a fistula. Usually there is lesion of the nasal duct, which remains permament unless an operation is undertaken for its removal, though sometimes the closure of the nasal duct is the primary affection, the inflammation of the lachrymal sac being caused by it.

At the commencement of the disease, the local application of equal parts of Tincture of Aconite and Belladonna to the part, or painting it with Tincture of Muriate of Iron, or Compound Tincture of Iodine, will remove inflammation and prevent suppuration. A brisk purgative, followed by the hot foot bath and an active diaphoretic, occasionally proves useful. If pus forms, an incision should be early made for its removal, thus preventing change of the lachrymal sac, and especially distension, and permament closure of the nasal duct. An injection of ten or twenty grains of Sesqui-carbonate of Potash to the ounce of water, will now assist very much in effecting a speedy cure. As soon as the inflammation subsides, if the nasal duct seems closed, a style should be inserted.

Closure of the nasal duct, producing *fistula lachrymalis*, frequently results from the above inflammation, though it may be produced by injuries of the bones or soft parts, or an extension of inflammation to its mucous lining from the nose, or from the conjunctiva. In a majority of cases there is a fistulous opening over the lachrymal sac, or a continuous suppuration and discharge of pus at the internal canthus, through the puncta, with more or less frequent attacks of acute inflammation of the sac, and discharge through the integument. In some of these cases a fungous looking mass, of considerable size, is found upon the site of the lachrymal sac, which is constantly discharging pus mixed with tears. This, and the constant flowing of the tears over the eyelid, is very unpleasant, and occasionally it keeps up continuous irritation of the eye, and causes imperfect vision. The disease is only cured by an operation, which consists in opening the lachrymal sac and introducing a silver style made for the purpose. The usual means to relieve irritation are then made use of, and the style retained until there is evidence of the free passage of the tears

and restoration of the mucous membrane lining the duct, when it is removed and the external opening allowed to heal.

The *puncta or canaliculi* may be obstructed from inflammatory action, and occasionally from other causes. In these cases there is also the overflow of tears and irritation of the lid. If it is produced by inflammation, the means heretofore named may be used to arrest it. If from other causes an Anel's probe may be passed into the puncta and through the canaliculi into the sac, with the result of removing the obstruction.

The *caruncula lachrymalis* is sometimes the seat of inflammation very similar to that in ophthalmia tarsi; and by displacement of the puncta will produce watering of the eye. It sometimes gives rise to considerable uneasiness and pain. It may be treated in the same manner as the other inflammations named, but when persistent, is best removed by the use of the mild Zinc Ointment, or Ophthalmic Ointment. Occasionally they are the subject of chronic enlargement, forming a red, soft, tuberculated tumor, of considerable size, which bleeds readily on pressure. It may be occasionally removed by the application of a saturated solution of Tannic Acid, or the solid Nitrate of Silver, but in many cases will have to be excised; one-half or more being cut away, the remainder disappears.

Pterygium.—This is strictly a disease of the conjunctiva, and consists of a thickening of a circumscribed portion of it extending between the internal canthus and the cornea, though occasionally it is found on the temporal side. It is divided into two kinds, the membranous and fleshy, both kinds being triangular, with their apex toward the cornea. It commences from without, and grows inward, occasioning but little disturbance until it reaches the cornea. If it commences to involve the conjunctiva-cornea, it gives rise to irritation, and may be attended with serious consequences. It may be arrested by cauterizing with Nitrate of Silver, or other escharotics, but the easiest plan is to dissect off the half next the cornea, when the remainder will generally disappear without trouble.

OTITIS.

Quite a number of different affections have been grouped together under the head of otitis, and as they are all inflammatory, present similar symptoms, and require nearly the same treatment, it will hardly be worth while to endeavor to make the distinction. Inflammation of the external auditory meatus and cavity of the tympanum is usually produced by sudden changes of temperature, though it may be caused by the introduction of irritants, or even from accumulation of cerumen.

SYMPTOMS.—Inflammation of the external auditory meatus commences with a feeling of stiffness, fullness and uneasiness about the meatus, which is increased when the ear is pressed upon. In a short time the pain becomes very severe, is tensive, darting, lancinating, and seems to affect the entire side of the head to some extent. Frequently there are marked chilly sensations with the accession of the severe pain, and these are followed by febrile reaction. On examination we will find the lining membrane of the meatus tumid and red, sometimes swollen so as almost entirely to close the opening. The pain continuing for from two to six days, secretion takes place, or pus is formed and discharged, sometimes in considerable quantity. At first it is usually thick, but at last is thin, and in some cases is secreted in very large quantity. The discharge continuing for a short time, the symptoms of inflammation entirely disappear, and the part is restored to its normal condition.

Acute inflammation of the cavity of the tympanum, is a far more serious affection, and may result in permanent impairment of the hearing, or even in death by extension to the brain. In children this is usually very severe at night, with comparative ease during the day, though the child is restless and irritable. There is usually considerable fever at night, and even during the day; the skin is dry and the pulse hard.

"In the adult this affection is usually of a much more formidable nature, and it sometimes has a rheumatic or gouty character. The first symptom is a sense of uneasiness in the ear, which becomes painful during motion, pressure on the organ, the act of deglutition, or the use of the pocket hand-

kerchief. This uneasiness soon amounts to continuous pain, which in severe cases, rapidly increases until it becomes so intense as to be scarcely endurable, and extends over the mastoid process, the whole of the affected side of the head, down the neck, and into the fauces. The power of hearing rapidly diminishes, and a variety of the most horrible sounds are experienced, sometimes described as like the hissing and puffing of a steam engine, varied by others like a series of explosions in the ear, or the ringing of bells. A symptom of this affection, which adds greatly to the suffering of the patient, is the impairment of the functions of the brain, sometimes amounting only to a confusion of ideas, frequently accompanied by extreme fever and depression of the nervous system, causing the worst forebodings as to the result of the attack; in other cases, delirium supervenes; and in the most formidable cases death takes place from the inflammation extending to the membranes of the brain."—(Toynbee.) In some rare cases the inflammation attacks the mastoid cells, producing severe and circumscribed pain in that locality, and occasionally terminating in suppuration, and sometimes serious lesion of the brain, if the pus is not permitted to escape.

DIAGNOSIS.—Inflammation of the ear presents such marked symptoms that it is not easily mistaken. The severity of the pain, and its location, and attendant constitutional disturbance, are sufficiently characteristic. If the external meatus is the seat of the disease, it will be found red and swollen, as is the case if the membrana tympani is affected. If confined to the cavity of the tympanum, all the symptoms are more severe, and there is an absence of external signs of inflammation. When the inflammation extends to the mastoid cells, the constitutional disturbance is very marked, and when pus forms, the deep throbbing and marked disturbance of the brain shows the character of the lesion.

PROGNOSIS.—Though quite painful, inflammation of the external meatus is not dangerous, nor attended with worse results than otorrhœa in occasional cases. If the tympanum is affected there is some danger of affection of the brain, and considerable of impairment of the hearing. Inflammation of

the mastoid cells, if it progresses to suppuration, is always dangerous.

TREATMENT.—Though the inflammation is confined to such a small portion of the body, it demands active treatment. I should in this case put the patient upon the use of the sedative, Aconite or Veratrum, gtt. x to water ℥iv., giving teaspoonful doses every hour. Any remedy may be added that is indicated, as Asclepias to produce perspiration; Gelseminum if there is evidence of determination of blood; Belladonna, if the patient is dull and drowsy; Lobelia if inclined to cough; Bryonia if the pain is tensive and extends through the floor of the cranium; Rhus if the pain is burning; Macrotys if associated with rheumatism, etc.

Locally we would direct the use of cups over the mastoid process and in front of the ear, or sometimes the application of leeches in the case of an adult. This may be followed by the use of the vapor of water, and hot fomentations of Stramonium. Occasionally much relief is obtained from the use of a lotion of equal parts of Tincture of Aconite and Belladonna, applied around the ear. In some cases, the fever being very intense, we may employ the vapor of Tincture of Opium, Stramonium, Lobelia, Tobacco, etc., directly to the external meatus and membrana tympani, by means of a gutta-percha tube. Chloroform and Æther may be used in the same way, as may also Carbonic Acid Gas. If the disease seems to extend to the mastoid portion of the bone, I should apply a blister immediately over it, and follow it with the irritating plaster. In some cases, suppuration having undoubtedly taken place, and dangerous symptoms occurring, it becomes necessary to open into the mastoid cells through the bone, in order to permit the escape of pus.

OTORRHŒA.

Purulent discharges from the ear may be occasioned by chronic inflammation of the external meatus, or disease of the bony canal, or it may proceed from chronic inflammation of the tympanum, or disease of adjacent parts, the membrana tympani having been ruptured or destroyed, so as to permit its escape. In either case there is more or less deafness, uneasiness

in the ear, and an offensive discharge. The most frequent causes of otorrhœa are inflammation attending the eruptive fevers, injuries, the direct action of cold, and chronic inflammation resulting from an acute attack. Some families seem to have a predisposition to this affection, the majority of their children having such discharge. In such cases it is almost always associated with scrofula and feeble vitality.

Otorrhœa from disease of the external auditory meatus is the most frequent form of the affection, and might properly be called chronic catarrh. It is of frequent occurrence after scarlet fever and measles, and is often seen in infancy or up to the age of two or three years, becoming more rare as we advance to adult age, except in the cases named. It is true, that the disease commencing at the age of two or three years may continue through life, but this is not very common when the patient has sufficient vitality to reach adult age. Farther than the discharge from the ears of an offensive purulent matter, and some dullness of hearing, there are no prominent symptoms, if we except the almost invariable cachectic appearance of the child. On examining the ear, we will sometimes find the bone in a carious condition. When the hearing is much affected, we will find the membrana tympani opaque, and its dermoid layer thick and vascular. In some cases, the discharge is produced by a small polypoid formation in the ear, and in others by a hardened cerumen.

Otorrhœa from disease of the middle ear occurs only when the membrana tympani has been destroyed or ruptured, and may arise from chronic inflammation of the lining membrane, disease of the ossicles, or disease of the bony walls. It is most generally the sequence of acute inflammation, which terminating in suppuration, the membrana tympani gives way, and the inflammation gradually assumes the chronic form. There is always deafness, sometimes but slight, but at others marked. There may or may not be pain or unpleasant sensations in the ear, though usually, if there is but a slight opening in the membrana tympani, it occasionally becomes closed, and dizziness, ringing in the ear, etc., result from the pressure of the retained secretion.

The condition of the tympanum varies greatly; in some cases there is but slight change of structure, in others, the ossicles become diseased, and are cast off, the mastoid cells and Eusta-

chian tube are affected to some extent, and the hearing is nearly entirely destroyed. It may occasionally terminate fatally by an extension of the inflammation to the membranes of the brain.

TREATMENT.—In all cases it becomes necessary to pay attention to the general health, for as long as the child or adult continues cachectic it is almost impossible to arrest the discharge. We would put the patient on a tonic, bracing course of medicine, consisting of the bitter tonics and iron, associated with a vegetable alterative, or with Acetate of Potash, Iodide of Ammonium, or Syrup of Iodide of Iron. Especial attention should be paid to the skin, using the daily bath and following with brisk friction; exercise in the open air is also important.

Prominent among local applications in all forms of this affection, except when occasioned by a foreign body lodging in the ear, or a polypoid growth, is counter-irritation over the mastoid process. It should never be neglected, but pursued steadily until the cure is complete. The best agent that I have ever employed is the Cantharides, which may be repeated sufficiently often to keep up a continued influence. In common chronic inflammation of the external meatus, washing the ear out thoroughly with tepid water, and dropping three or four drops of,

℞ Tincture of Muriate of Iron, ℥ij.
Glycerin, ℥j. M.

Into the ear once or twice daily, will effect a cure in one or two weeks. A weak solution of Nitrate of Silver, Sulphate of Zinc, or Acetate of Lead, from four to ten grains to the ounce of water, may be used in some cases.

℞ Chlorate of Potash, gr. xx.
Glycerin, ℥ss.
Water, f℥j. M.

Also forms a good application. An infusion of Hamamelis, Hydrastis, Cornus, Geranium, Sage, etc., are found useful in some cases. Later I have employed the Salicylic Acid with Borax, gr. x. of each to ℥iv. of water, using it with a syringe or brush.

Many times washes and lotions are a complete failure, and we obtain a cure by dry applications. Very finely powdered Borax or Boracic Acid has been used with good success.

In some cases reported the meatus has been filled with Boracic Acid. Sub-Nitrate of Bismuth may also be used, dusting the surface freely with a camel's hair pencil. Aristol has also been used with success in such cases.

If the discharge is produced by accumulations of hardened cerumen acting as a foreign body, this should be softened and removed with a scoop. If from a polypus, and it is not red and vascular, it may frequently be removed by the application of a saturated solution of Tannin, or the careful application of Chloride of Zinc. The best plan, however, in all cases, is to catch it with a strong pair of ring forceps, and detach and remove it.

DEAFNESS.

Partial loss of hearing depends upon various causes, some of which are remediable; total deafness depends upon disease of the internal ear, and if of any considerable duration is incurable. We wish, therefore, in this place, to inquire into the causes of partial deafness, and see how far they are amenable to treatment. We may sum them up, as: 1st, from disease of the external meatus; 2d, from disease of the membrana tympani; 3d, from disease of the tympanum; and, 4th, from disease of the eustachian tube. Diseases of the internal ear are beyond our powers of diagnosis, though we are able occasionally to determine with considerable certainty that the deafness is dependent upon partial paralysis—we call this nervous deafness. The ear-speculum should always be used, so as to make an accurate diagnosis.

1. The external meatus suffering from chronic inflammation will give rise to hardness of hearing as we have already seen. In other cases the lining membrane is thickened and dry, and in addition, the ceruminous glands seem to pour out a very inspissated secretion, which desiccating sometimes fills up the bottom of the meatus. In this case we would use injections of tepid water and the scoop, to thoroughly cleanse the ear, and then use the lotion of Tincture of Muriate of Iron and Glycerin, heretofore mentioned. The lotion of Chlorate of Potash and Glycerin may also be used in these cases. If there is irritation of the structures, much benefit will be derived

from counter-irritation over the ear. Polypi obstructing the meatus should be removed as before mentioned.

2. A condition of chronic inflammation of the membrana tympani, giving rise to a fleshy, vascular appearance when examined with the speculum, is sometimes a cause of deafness; quite frequently it is associated with catarrhal inflammation of the meatus, though it may persist afterwards. An injection of a decoction of Cornus or Hydrastis, and the local application with a camel's hair pencil of the Oxide of Zinc, Morphia and Glycerin, heretofore named, is usually sufficient. Counter-irritation over the mastoid process is also employed. Relaxation of the membrana tympani is not of frequent occurrence, but may occasionally be met with as a cause of deafness. It is readily determined by the use of the speculum, the membrane being remarkably concave on its external face, and is diagnosed from the same appearance resulting from closure of the eustachian tube, by its being thrown outward by swallowing with closed nostrils. It is usually removed readily by the use of counter-irritation, the local application of a solution of Nitrate of Silver, four grains to the ounce of water, and an injection of a decoction of Cornus or Hydrastis.

Perforation of the membrana tympani is a frequent cause of deafness, and is readily detected with the speculum. It seems, however, that the deafness depends in part upon thickening of the mucous membrane of the tympanic cavity, for when this is marked the patient can hardly hear at all, while in other cases the deafness is but slight. We should therefore endeavor to remove all irritation by the use of counter-irritants and appropriate local applications, and we will then have placed the patient in the best condition for the use of the artificial membrana tympani; this is formed out of vulcanized rubber, and has been very successfully employed.

3. Various changes in the tympanic cavity, resulting from inflammation, may be the cause of deafness, but there is only one so far as we know, that can be reached by remedial measures. We have already noticed that a chronic inflammation of these structures might continue for years, attended with secretion; and examination shows us in some cases, a thickening of the lining membrane, with increased vascularity. In these cases, the persistent use of counter-irritation, and the

local means heretofore named, will do much towards a relief of the deafness.

4. Obstruction of the eustachian tube always gives rise to partial deafness, though, as the causes are usually temporary, the deafness is not of long duration. Dr. Toynbee notices three points of obstruction: 1, at its faucial orifice, a thickening or relaxation of the mucous membrane; 2, at its tympanic orifice, from thickening of the mucous membrane, or a deposit of fibrin; 3, in the middle part of the tube, from a collection of mucus, a stricture of the osseous or cartilaginous portions, or membranous bands connecting the walls. If the eustachian tube is impervious, we will find the membrana tympani sunken in, of a dull, leaden hue, and its surface unnaturally glossy, and swallowing with the nose closed or forcible expiration will not have any effect on it.

If the patient has had disease of the tonsils, fauces, or posterior nares, we may reasonably suppose that the disease has been caused by this, and is at the faucial extremity of the tube. The inflammation sometimes extends to the mucous membrane lining the tube, and its tumefaction causes the disease. In other cases the swelling of the mucous membrane at the termination of the tube is the cause of it, and in another class it results from relaxation. In these cases, appropriate measures to relieve inflammatory engorgement in the one instance, and to remove the atony and relaxation in the other, should be adopted. The orifice of the eustachian tube may be reached through the mouth or inferior meatus of the nose, and local applications may be made with a probang or syringe. In some cases it is proposed to remove obstructions by means of a catheter passed into the eustachian tube, but no permanent benefit results from it. We may, however introduce a catheter for the purpose of using an injection into the tube, using the same remedies that would be indicated in other situations, as, for instance, those recommended in otorrhœa.

Nervous Deafness.—Toynbee remarks that "As some cases of deafness dependent upon the derangement of the nervous apparatus connected with the organs of hearing appear to be caused by the condition of the brain generally, or of that part in intimate relation with the acoustic nerve, it has seemed desirable to divide the nervous diseases of the ear

into two classes; to the first of which belong those cases where the special nervous apparatus of the organ is alone affected; to the second, those where the brain conjointly with the ear, seems to be injured. The first class may be divided into diseases arising from—1, concussion; 2, the application of cold; 3, various poisons, as that of typhus, scarlet, or rheumatic fevers, of measles and mumps, of gout, of an accumulation of bile in the blood, and of quinia in large doses. And the second into diseases arising from—1 excess of mental excitement; 2, physical debility.

In the first class of cases there is not unfrequently ringing and singing in the ears, with other morbid sounds, and sometimes a feeling of giddiness and unsteadiness extremely unpleasant. From its commencement there is frequently a continuous increase in the deafness; but in other cases it remains the same, and in still others there is gradual improvement. It is generally conceded that in very many cases there is congestion of the nervous apparatus of the internal ear, though if it continues for a considerable time it will very likely terminate in structural change. The treatment in these cases consists in the administration of alteratives, keeping the bowels open, and the secretion of the kidneys free, by the administration of the saline diuretics, and normal action of the skin by the daily use of the bath with friction. Persistent counter-irritation over the mastoid portion of the temporal bone, with Cantharides or the irritating plaster, is one of the most important parts of the treatment. These measures, followed up for months, will occasionally produce the most marked benefit, the hearing being sometimes completely restored; but in other cases no benefit results.

In the second class of cases we will have more or less evidence of cerebral disturbance, though frequently the symptoms are imperfectly marked. No treatment can be laid down for these cases, as the symptoms are so variable and changing. They should be treated on general principles, and we will sometimes be agreeably surprised at a favorable termination in cases which had seemed hopeless; and not unfrequently we will fail where we seem to have the best chance of success.

CHAPTER XI.

DISEASES OF THE SKIN.

There is no class of diseases that is less understood by the general practitioner, than affections of the skin, and yet there is no reason why this should be so, as they are of frequent occurrence, and being situated where they may be accurately examined by sight and touch, they are readily recognized. The causes of diseases of the skin are various; some are propagated by contagion, others arise from want of cleanliness or mechanical irritation of the skin, and a third class depend upon disease of the blood, or arrest of secretion. To obtain an accurate knowledge of these affections, it is necessary to group them together as they correspond in general symptoms and appearance, and study them in classes. The classification of Biett is, perhaps, the best for the student:

Order I. EXANTHEMATA.
- Erythema,
- Erysipelas,
- Roseola,
- Rubeola,
- Scarlatina,
- Urticaria,

Order II. VESICULÆ.
- Miliaria,
- Varicella,
- Eczema,
- Herpes,
- Scabies.

Order III. BULLÆ.
- Pemphigus,
- Rupia.

Order IV. PUSTULÆ.
- Variola,
- Vaccinia,
- Ecthyma,
- Impetigo,
- Acne,
- Mentagra,
- Porrigo,

Order V. PAPULÆ.
- Lichen,
- Prurigo,

Order VI. SQUAMÆ.
- Lepra,
- Psoriasis,
- Pityriasis,
- Ichthyosis

Order VII. TUBERCULÆ.
- Elephantiasis,
- Molluscæ,
- Framboesia.

Order VIII. MACULÆ.
- *Colorationes*,
- Fuscedo Cutis
- Ephelides,
- Nævi,
- *Decolorationes*,
- Albinismus,
- Vitiligo.

Each of these orders have certain grand characteristics by which they are recognized, and each division will have these markedly defined, forming its most prominent symptoms those peculiar to the affection being sometimes well marked, and at others rather obscure. Cazenave describes the important symptoms of each class, as follows:

Exanthemata.—This term is applied to patches of a reddish color, varying in intensity, size, and form, disappearing under pressure of the finger, and terminating in delitescence, resolution or desquamation.

Vesiculæ.—A vesicle is a slight elevation of the epidermis, containing a serous and transparent fluid, which, however, is occasionally opaque or sero-purulent. The vesicle may terminate in absorption of the fluid, slight desquamation, excoriation, or the formation of small, thin incrustations.

Bullæ.—Generally speaking, bullæ differ from vesiculæ merely in size; they are small superficial tumors, caused by effusion of serum underneath the epidermis.

Pustulæ.—This term should be strictly confined to circumscribed collections of pus on the surface of the inflamed mucus layer. The contents of the pustules in drying produce scales, and they may be followed by chronic induration, or by red inflamed surfaces, or sometimes by slight excoriation.

Papulæ.—These are small elevations, which are solid, resisting, and never contain any trace of fluid; they may likewise give rise to ulceration, but generally terminate in resolution and furfuraceous desquamation.

Squamæ.—The term squamæ is applied to the scales of thickened, dry, whitish, friable and degenerated epidermis, which cover minute papular elevations of the skin; they are easily detached, and may be reproduced for an indefinite length of time by successive desquamations.

Tuberculæ.—These are small hard tumors more or less prominent, circumscribed in form, and persistent; they may become ulcerated at the summit, or suppurate partially. In this definition we consider tubercles as elementary lesions, and not those which appear after abscesses.

Maculæ—Are permanent changes in color, in certain parts of the skin, or of the whole cutaneous envelope, but unattended with any general derangement of the health.

ORDER I.—EXANTHEMATA.

The general characteristics of this order are well marked at first, though in the progress of the disease they may so change that they will approximate some of the others. They always commence with redness of the skin, which is effaced for the moment by pressure, returning as soon as this is removed Some of them, as erysipelas, rubeola and scarlatina, are attended with marked constitutional disturbance, and in the last two, as we have already seen, the cutaneous disease is associated with disease of the throat and respiratory apparatus; and in all three of the diseases named, there is, in some cases, marked lesion of the blood.

ERYTHEMA.

Erythema is one of the mildest of the exanthemata, and usually is not accompanied with febrile action, though in the severer cases there is arrest of secretion and some constitutional disturbance. It may be associated with other diseases, as with intermittent and remittent fever, gastric irritation and diarrhœa. It may be produced from mechanical irritation of the skin, but the most frequent causes are cold and arrest of cutaneous secretion, or gastric, intestinal, or menstrual derangements.

SYMPTOMS.—The disease appears in the form of patches of variable size, of a light, superficial red color, readily effaced by pressure, and most frequently on the face, chest and limbs. In some cases they spread so as to cover a considerable portion of the body, but this is not frequent. One form, termed *erythema nodosum*, is preceded by slight constitutional disturbance, and comes out in oval, red patches, from half an inch to an inch in diameter, most generally on the lower extremities. When more fully developed they are slightly elevated above the adjacent skin, and in a few days form small, red, painful tumors, which seem inclined to suppurate, and in severer cases give a suspicious sense of fluctuation, but at last disappear without any change of structure. The first form may last but a few hours, or in rare cases it may continue two or three weeks; the second usually continues for from three to six days.

TREATMENT.—The Tincture of Aconite is added to water in the usual proportion, and given in teaspoonful doses every hour until the fever declines. If there is dullness and disposition to sleep, Belladonna, gtt. v., may be added to the sedative solution. If there is restlessness, with sudden startings in sleep, add Rhus, gtt. v., to the solution of Aconite. When the face is flushed, and the eyes bright, Gelseminum may be given. Or any other remedy should be added which special symptoms may indicate. The surface should be bathed with a weak solution of Carbonate of Potash, and in some cases we would use the warm foot bath. In the second form of the disease, I have usually prescribed a gentle laxative, with a solution of Acetate of Potash, and very small doses of Aconite. The use of the alkaline bath gives great relief, and it may sometimes be repeated several times a day. In some rare cases there seems to be a tendency to excoriation, and in such case I would advise a lotion of—

℞ Glycerine, ʒj.
Chlorate of Potash, gr. x.
Rose Water, ʒij. M.

ERYSIPELAS.

Erysipelas is undoubtedly a disease of the blood, and should be classed with the eruptive fevers, though not contagious, except in exceptional cases. It may occur at any age, though it is more frequent in adults than in children. The causes of erysipelas are obscure, though it is probably occasioned by cold, arrest of secretion, etc., as in other forms of fever. It occurs most frequently in the spring and autumn, and in persons of a fine delicate skin. Occasionally it becomes epidemic in a neighborhood or section of country, and in other cases highly contagious, as in large hospitals. I have known surgeons that had to suspend all operations, even the most simple, on this account, for weeks, as almost every case operated on would have erysipelas. We distinguish three forms of this disease—E. verum, E. phlegmonodes, E. gangrenosum.

SYMPTOMS.—1. *Erysipelas Verum.*—Frequently the disease is preceded, or in other cases shortly followed, by a well marked chill, to which succeeds febrile action. In some cases the fever is slight, but in others it is as intense as in the continued fevers. With the commencement of the chill a circumscribed redness of some portion of the skin comes up, and in a few hours

becomes slightly swollen, hot and painful. The redness is generally deep, but is effaced by pressure, though from the exquisite tenderness of the part, the patient will rarely permit it. As the disease continues, it usually extends slowly to adjacent parts, the advance of the inflammation being marked by slight swelling, pain and tenderness on pressure. In this way, commencing as a small spot on the face, it sometimes extends until it involves the entire face and scalp.

Frequently in the course of two or three days the epidermis is loosened and distended with a yellowish serum, forming bullæ of larger or smaller size, and these rupturing pour out their secretion, and sometimes become covered with thin incrustations. The redness usually fades, and the inflammation commences to disappear by the fifth or sixth day, leaving the epidermis wrinkled and yellowish, and at last it desquamates over the entire surface. This form of erysipelas may appear upon any part of the body, but is far more frequent upon the face and extremities. The fever is in some degree dependent on the extent of the eruption, though in severe cases where this is comparatively slight it will be very severe and of a low asthenic form; delirium sometimes occurs when the face and scalp are affected.

2. *Erysipelas Phlegmonodes.*—This variety affects not only the skin, but the cellular tissues, and in some cases, the entire structure of a part, and is proportionably more severe. It results more frequently from injuries, as bruises or punctured wounds, but may be idiopathic; it occurs most frequently in the extremities. In many cases the disease is ushered in with a chill, to which succeeds febrile action. Occasionally the fever is very intense, the tongue becoming dark-coated, the pulse hard, small, and frequent, the bowels irregular, urine scanty, high-colored and fœtid, with low muttering delirium. The local disease comes up as in the other case, with heat, pain and redness, but it is soon observed that the swelling is much more marked. When the disease is fully developed the pain is intense, and the patient cannot bear the slightest pressure on the part, which seems to be swollen to its fullest extent. In the course of from three to five days, the redness and heat subside, and the part gives a doughy sensation to the touch, and is if anything more swollen and painful. Small purulent deposits are now noticed, which upon being opened, at first discharge

a healthy pus mingled with flakes of broken down cellular tissue, and afterwards, in some cases, a reddish flocculent material. When the disease has been severe, a large portion of the cellular tissue will have lost its vitality, and will be discharged in this manner, recovery being slow.

3. *Erysipelas Gangrenosum.*—This form usually occurs in persons of broken down constitutions, or where the health has been impaired by previous disease. It may come up as in the preceding case with severe constitutional and local symptoms, but more frequently these are mild. The swelling is usually very marked, and in a short time the surface is observed to become of a dusky-red, or almost black color, phlyctenæ appear, and the inflammation soon terminates in gangrene. With the appearance of these symptoms, the fever frequently assumes a low typhoid form, with muttering delirium, dark-brown tongue, diarrhœa, etc., and if the disease is extensive, soon terminates fatally.

DIAGNOSIS.—The symptoms of erysipelas are so well marked that it cannot well be mistaken for any other disease. The deep, circumscribed redness, burning pain, swelling and heat, and the severe constitutional disturbance, are its distinguishing features. *Erysipelas of the face*, its most common situation, will commence in a spot not larger than a dollar, and will gradually spread until it involves a large portion of the integument, the swelling being so great as to almost entirely obscure the features. On the extremities it may be limited and the symptoms mild, but frequently commencing on a limb it will extend up or down, until a considerable portion is involved, the tumefaction being so great as to entirely change the appearance of the part.

PROGNOSIS.—Erysipelas will terminate favorably in a large majority of cases, if properly treated. It becomes dangerous where a large portion of the integument is involved, with severe constitutional disturbance; where the tongue becomes dark, with diarrhœa, and great prostration; where inflammation of the brain occurs during erysipelas of the scalp; and in severe cases of phlegmonous, and in the gangrenous form of the disease.

TREATMENT.—In no disease, probably, is the specific action of remedies more marked than in erysipelas, and when well

selected the action is usually very prompt. The expectant treatment, or nothing at all, would be very much more successful than the old practice of purgation and local burning with Nitrate of Silver or Iodine. That we may get a good knowledge of the principal remedies, and the symptoms calling for them, we will consider them separately, premising that the name erysipelas, like other names, covers a number of conditions, and is met by different remedies.

Tincture of Muriate of Iron.—I name this first, because it is best known as a remedy for erysipelas. It meets a very large number of cases, some promptly, others slowly, and still others not at all. Given, a case of erysipelas with *deep redness* of tongue, and deep color of eruption, use this remedy internally and as a local application. Five to twenty drops every three hours, is about the proper dose internally; externally, it may be applied from full strength to one part to six of glycerine. There is no objection to using the sedatives with it, if thought necessary, but when the indications are strongest, the Tincture of Iron will cure without other remedies.

Sulphite of Soda.—Sulphite of Soda is a remedy in many cases of phlegmonous, and some of gangrenous erysipelas, and has just the opposite indications to the Tincture of Iron.

In this case the tongue is broad, pallid, and coated with a dirty fur, whilst the part is frequently full, doughy or sodden. Give the remedy in doses of ten to twenty grains every three hours, and use a solution of Salicylic Acid and Borax, or of Permanganate of Potash as a local application.

Rhus.—Rhus is the remedy for erysipelas when the redness of the part is bright, the pain burning, the pulse small and sharp, the tongue pointed, tip red on surface, and pain in forehead. I usually prescribe it with Aconite, gtt. v. of each to water ℥iv.; a teaspoonful every half hour or hour. It is very prompt in its action when the indications are marked. Lard is frequently the best local application in this case, though sometimes Tincture of Muriate of Iron with Glycerine will answer well.

Veratrum.—Veratrum is a very certain remedy in erysipelas when the pulse is full and strong, and when the inflammation of the skin is active. The redness of the part is now that of ordinary inflammation, and it does not look as if scalded, as in the preceding case. We use it internally in

the ordinary dose, gtt. x. to gtt. xx. to water ℥iv.; a teaspoonful every hour; and as a local application from the tincture to a dilution of one part to six or ten of water.

Apis.—Apis may be thought of as the remedy when there is intense itching and burning Ten drops of the tincture may be added to half a glass of water, and given in doses of a teaspoonful every hour.

In this case, as in others, if there is evidence of determination of blood to the brain, we use Gelseminum; and if the patient is dull and inclined to sleep too much, Belladonna. These may be alternated with the special remedy indicated. If there is distinct periodicity, Quinine may be used in antiperiodic doses, and if there is feeble innervation in the advanced stages, it may be used in very small doses as a nerve stimulant. Other remedies may also be used as indicated, though we prefer a simple plan of treatment.

In phlegmonous erysipelas, we may employ the means above named until evidence of suppuration presents itself, when the part should be immediately opened. In some cases the first appearance of suppuration, manifested by throbbing or extreme and unnatural swelling and tension of the part, calls for free incisions. We may anticipate the suppurative process, but we give relief and mitigate the severe constitutional disturbance, and sometimes thus save the life of the patient, or the use of the limb. There can be no doubt but that the only successful plan of treatment in some cases of gangrenous erysipelas is the free use of the knife, followed by the topical application of a solution of Sulphate of Zinc. Suppuration having been established, it has been my practice to syringe the openings with a solution of Sulphate of Zinc, ten to thirty grains to the ounce of water, and use the Salicylic Acid and Borax as a dressing, even syringing the openings with it.

ROSEOLA.

Roseola, or *rose-rash*, is a mild exanthematous eruption, continuing from one to six or seven days, and attended by more or less febrile action. The causes are obscure, though arrest of secretion and gastro-intestinal irritation are the most frequent. It sometimes occurs as an epidemic, especially in warm seasons,

and sporadically, from over-heating the body, severe exercise, etc. Four varieties have been distinguished. R. infantilis, R. œstiva, R. autumnalis, and R. annulata.

SYMPTOMS.—*Roseola infantilis*, as its name indicates, is usually met with in young children, and arises from gastro-intestinal irritation, or from dentition. It comes out in the form of deep rosy-red patches about one fourth of an inch in diameter, and circular in form. When severe, they are very much crowded together so as to give a general red appearance to the surface, but yet each one is well defined. They may continue for several days, or vanish and reappear for several days. Usually the fever is but slight, but the child shows symptoms of irritation, being cross and fretful.

Roseola œstiva is usually ushered in by marked febrile action, and in children delirium or convulsions sometimes supervene. The eruption usually appears about the third or fourth day on the face and neck, and in a few hours involves the greater part of the body. "The spots are of a deep red color, more irregular in shape than those of measles, and their original color soon passes into a light rosy hue. There is also present a considerable degree of itching and pain, and often difficulty in swallowing." The disease runs a very variable course, but the eruption usually disappears in three or four days without desquamation.

Roseola annulata, comes out in the form of rose-red rings, in the center of which the skin retains its natural color; it is said to be principally observed on the abdomen and buttocks. It is not usually accompanied with much fever, but is occasionally very persistent, and is usually associated with gastro-intestinal irritation.

DIAGNOSIS.—Roseola may be distinguished from measles by the spots being larger, circular, circumscribed, and of a deep rose color, whilst the patches of measles are small, irregular, and of a bright red color. The eruption of scarlet fever consists of a great number of small red points of a scarlet or raspberry color, and grouped together so as to form irregular patches.

TREATMENT.—But little treatment is necessary in many cases of this disease, as it passes through its various stages, with but slight disturbance. Usually we prescribe for a child,

℞ Tincture of Aconite, gtt. v.
Water, ʒiv. M.

Give in teaspoonful doses every hour until it relieves the fever. Occasionally the stomach is very much out of order, when we give a mild emetic. In the severer cases I would administer the special sedatives to arrest the fever, with Tincture of Gelseminum or Rhus, as indicated, and direct the alkaline bath to be used once or twice daily.

URTICARIA.

Urticaria or *nettle-rash* occurs most frequently in childhood, though we occasionally see cases of it in the adult. The most common cause is doubtless gastro-intestinal irritation, though the milder forms may be caused by sudden changes of temperature, or excessive mental emotion. Sometimes it is an acute affection, but more frequently it assumes a chronic form, and may last for months or years, reappearing on the slightest imprudence of diet or change of habits.

SYMPTOMS.—Though divided into several varieties, it will suit our purpose to consider it as *febrile* and *non-febrile*. In the first case the eruption is preceded for a day or two by slight febrile symptoms, irritation of the stomach, and pain at the epigastrium. The eruption then comes out in the form of red or pale red blotches, irregular in shape, elevated above the adjacent skin, hard around their edges, and surrounded by a bright red or scarlet border. An intolerable pruritus and burning accompanies the eruption, aggravated by warmth, and usually by scratching or rubbing the part, and is sometimes so severe as to prevent the patient's sleeping. The eruption is not constant, but goes away and reappears sometimes every few hours. The disease usually continues for seven or eight days, with some constitutional disturbance during the entire period, and at last disappears, leaving but slight itching; in severe cases there may be some desquamation.

The non-febrile form is usually chronic, and has been divided into two varieties, U. evanida and U. tuberosa. In the first, the eruption appears at irregular intervals, sometimes for months or years, is not attended by febrile action, and has not the red border just noticed; the spots look more like those produced by whipping, and are only accompanied by itching.

The last form is very rare, and instead of the slightly elevated blotches, there are broad, hard, deep-seated and painful tuberosities which impede motion. It passess off and reappears like the preceding variety, but almost always leaves the patient fatigued and depressed.

DIAGNOSIS.—There is but one disease (*lichen urticatus*) with which this can be mistaken, and from that it may be distinguished by the large, irregular blotches, while in lichen, the papulæ are rounder, less prominent, smaller, harder, and of a deeper color. Urticaria may be complicated, however, with erythema, roseola, impetigo and lichen.

TREATMENT.—In the simple form of the disease it may be sufficient to give the usual small doses of Aconite, and have the surface bathed with an alkaline wash. When the itching is very intense without much fever, I use Apis, gtt. v. to warer ℥iv., a teaspoonful every hour. If the case is still more severe, with the frequent, sharp pulse, frontal pain, and the peculiar red tongue, Rhus is added to the mixture of Aconite. If the patient is dull and stupid, either from retrocession or non-appearance of the eruption, give Belladonna to bring it out. In some cases we find the patient complaining of nausea and pain in the stomach and bowels without much fever; in either I should give Nux. In others the tongue is full, constantly furred, and the abdomen is tumid, and the patient wants minute doses of Podophyllin, triturated. So that in this, as in other cases, we employ those remedies that are specially indicated.

Rubeola and scarlatina have been heretofore described under the head of eruptive fevers, and need no notice here.

ORDER II.—VESICULÆ.

The distinguishing characteristic of this order is, the formation of small vesicles by an elevation of the epidermis, which are filled with a serous fluid. This fluid, at first transparent, in severe cases becomes yellowish and opaque, and is finally either absorbed, or dries and forms scales or incrustations. The vesicle is always round, and may or may not stand upon an inflamed base. One variety of this order, *varicella*, has already been described with the eruptive fevers.

MILARIA.

Milaria, or *sudamina*, most generally appears as an attendant upon other diseases, more especially typhoid, and the advanced stages of other fevers and inflammations. There are exceptional cases "in which it assumes an idiopathic form, as for example, when it appears in healthy subjects after violent exercise in warm weather; in these instances it is generally accompanied with copious perspiration. The eruption is then attended with a disagreeable sensation of heat and itching. The number of vesicles is sometimes very considerable, but they are ephemeral, and disappear in the course of twenty-four hours."—(Cazenave.) The miliary vesicle is small, not larger than a pin's head, and the contents being clear and transparent, it can not be seen well unless we look across the surface. They are usually grouped together in patches, upon the thorax and neck, and in rare cases become confluent, forming bullæ. They demand no treatment, being simply symptomatic of other diseases.

ECZEMA.

Eczema, humid tetter, or running scall, is characterized by eruption of small vesicles grouped and crowded together, and forming more or less well defined patches. It may be divided into the acute and chronic form, and these have to be still further divided into several varieties. The causes of eczema are very obscure, and it is non-contagious, except in rare cases when the disease affects the genital organs.

SYMPTOMS.—*Eczema simplex* commences with a sensation of itching, which is soon followed by the appearance of numerous small transparent vesicles, flattened, and set close together; after a time the fluid they contain becomes opaque, and they finally rupture, forming a small thin scab which is soon detached. They appear more frequently upon the fore-arm, and where the skin is thin and delicate, and frequently between the fingers, somewhat resembling the itch.

Eczema rubrum is accompanied with considerable heat and tension of the skin, and at first the vesicles may be observed as small solid points, but they soon become true vesicles, which attain the size of a pin's head, and finally disappear about the sixth or eighth day. In some cases the vesicles

coalesce and rupture, a disagreeable excoriation producing repeated incrustations being left.

In *eczema impetignodes* the inflammation of the skin is very marked and it is swollen, the vesicles are larger, and the contained fluid loses its transparency and becomes purulent, and finally they rupture, forming a scab, which is thrown off and re-formed sometimes for two or three weeks. Acute eczema of the last two forms is usually attended with well marked febrile action, which continues for two or three days, and sometimes for a longer period. The eruption is always accompanied by itching, which is sometimes very severe and troublesome.

Chronic eczema most generally results from an acute attack, and may continue for months, or even years. In these cases the skin becomes deeply inflamed and excoriated, and fissures form about the joints; a continued ichorous discharge is kept up which increases the irritation, and forms thin crusts, or coming in contact with the clothing agglutinates it to the part, and when removed there is much pain and smarting, and sometimes considerable flow of blood. When the crusts are detached, the surface is found reddened, soft and swollen. In other cases there is less exudation, the skin being dry, inflamed and fissured, and covered by slight crusts. "Chronic eczema is invariably attended with intense itching, more distressing than the severest pain. The patient in vain struggles against it, but he can not, however, resist the urgent desire to scratch himself, and thus increases his suffering. After a certain period, the itching begins to subside, the serous exudation gradually ceases, the scaly incrustations dry up, and the skin is less inflamed. Finally the disease becomes reduced to a small, dry, red surface, which is covered with extremely thin, laminated crusts. The surrounding skin is smooth, tense and firm, and only slowly resumes its natural state."—(Cazenave.)

DIAGNOSIS.—It may be distinguished from itch by the flatness of the vesicles, their being grouped together, whilst in itch they are pointed and isolated. The diagnosis of chronic eczema from litchen is sometimes difficult, but usually the presence of papulæ near the red inflamed surface is sufficient.

TREATMENT.—In the eczema of children there is usually a disturbance of digestion which should be looked after and corrected. Of the alteratives, we will probably select from them Sulphide of Calcium, Acetate of Potash and Iris– the first in 2d decimal trituration, the second in solution, and the third with water.

The local applications will be: cleansing the parts with warm borax-water, and the use of Resorcin or Ichthyol with Vaseline, ten grains to the ounce.

In *eczema rubrum*, Rhus is sometimes an excellent remedy at first, followed by Iris. Until the local irritation is removed, the parts may be freely dusted with Bismuth, and followed by the Resorcin as above.

In chronic eczema I have depended upon the Iris, occasionally alternating with Rumex, Alnus, and others of this class. Occasionally we see the need for Iron, and the deep redness would say Tincture of the Muriate. With the loaded, pallid tongue—dirty—any one would say give Sulphite of Soda, and this has proven one of our most efficient remedies.

Resorcin with Vaseline have proven most efficient remedies in my hands, being careful not to make the strength sufficient to cause irritation. But, sometimes, we will have to restrict ourselves at first to cleansing the part with a lotion of Borax, and dusting with Bismuth until the irritabillity of the skin passes away.

In some cases a general bath, rendered emollient by the addition of Mucilage or Gelatin, will be beneficial.

HERPES.

Herpes is most generally an acute disease, and is characterized by an eruption of vesicles grouped together on an inflamed base. The causes are unknown. Five varieties are distinguished: H. phlyctenoides, H. labialis, H. præputialis, H. zoster, and H. circinatus.

SYMPTOMS. -- *Herpes phlyctenoides* is usually attended by slight indisposition, loss of appetite and constipation. The patient feels a smarting, burning sensation of some part, and upon examination finds a number of slightly red spots, upon

which in a short time is developed six or eight firm and prominent vesicles from the size of a millet seed to that of a small pea. At first they are transparent, but in the course of a day become opaque and milky; there is frequently a sensation of itching, and sometimes the part feels quite painful. They commence to decline about the fourth or fifth day, drying up and leaving larger or smaller incrustations, and by the eighth or tenth day they have entirely disappeared, nothing but the redness of the surface remaining.

Herpes labialis is usually preceded by slight indisposition and fever, and hence the vesicles are often termed *fever blisters*. It usually comes out at the junction of the skin and mucous membrane, but may appear in the mouth, or as far back as the pharynx. It is usually preceded for a few hours by redness, and sometimes the part is swollen and painful. The vesicles are of various sizes, the largest about the size of a small pea; at first they are transparent, but in two or three days become opaque and yellow, and in two or three days more desiccate, forming brownish crusts.

Herpes præputialis appears on the external surface of the prepuce, small inflamed spots being first noticed, which in the course of a few hours are covered with groups of small globose vesicles. It runs a similar course to that just noticed, but in some cases continues to reappear for years, causing great annoyance to the patient.

Herpes zoster or *shingles* is usually the severest form of the disease, being attended in many cases with marked febrile action. It usually makes its appearance on the trunk in irregular patches of a red color, which are soon covered with vesicles; new patches coming up, the disease may pass entirely round the body, though Cazenave states that it never appears but upon one side at a time. The vesicles resemble those already described, but are sometimes larger; they usually disappear in four or five days, leaving at some points thin, brown incrustations which are soon detached. The disease usually lasts for ten or fourteen days, and sometimes longer

Hrpes circinatus or *ringworm* appears most frequently upon the face, neck and arms, though it may come out on any portion of the body. It comes out at first as a red spot about the size of a dime, on which shortly appears numerous small vesicles arranged in rings, hence the common name of ring-

worm; it is not attended with constitutional disturbance, and generally disappears in ten or twelve days.

DIAGNOSIS.—The diagnosis of herpes is generally easy, the vesicles being round, prominent, and grouped together on one inflamed or red base; the symptoms of the different forms are usually sufficiently marked for their easy distinction, as above described.

TREATMENT.—In H. labialis, we may note that whilst usually simple, and the result of cold, it is sometimes indicative of grave disease. In H. zoster, or shingles, the patient is put upon the use of Aconite and Rhus, and with rest in the house there is a speedy cure. No danger of death from "its going around the body." In H. Præputialis, the internal administration of Rhus with Iris, soap and water, and dusting the part with Bismuth, is sufficient for a cure. The best remedy for ringworm I have ever used is an application of equal parts of Tinct. Iodine and Aqua Ammonia. The spot may be painted with it every day until it disappears. Resorcin is an excellent remedy, but must be used quite strong. If there are many patches, the Resorcin may be used of the strength of ʒi to ʒi of Vaseline, and an internal treatment selected.

SCABIES.

Scabies, or itch, though a vesicular disease, is produced by an animal parasite—the acarus scabiei—and hence, as this insect possesses a very tenacious vitality, the disease is rendered contagious by its transmission from one to another. The acarus is usually found a short distance from the vesicle in a small furrow leading from it. With good sight or a magnifying glass it can be seen as a small, round, grayish body, sometimes moving, sometimes at rest. Under the microscope, its body is seen to be oval, the back convex and marked with curved lines, its head covered with fine hairs, and eight legs passing from its abdomen. The insect passes from one part to another, by burrowing under the epidermis, but is only conveyed to distant parts by the fingers, after scratching, and by the clothing.

SYMPTOMS.—Scabies almost always makes its first appearance between the fingers and front part of the wrist, in the

form of small pointed vesicles, containing a clear, limpid fluid, and a very fine line leading from it, and marking the situation of the acarus. An intense but pleasurable sensation of itching attends their appearance, and the patient can not resist the inclination to scratch or rub the part, though this sometimes gives rise to a sensation of smarting, if too severe. As the disease progresses, the irritation of the skin by the nails usually produces suppuration in the vesicles, the result being the formation of larger or smaller scabs, and some inflammation and stiffness of the skin. In severer cases we occasionally see in the interspace between the fingers a large festering surface covered with thick scabs, and the hands so stiff and painful that they can hardly be used. Sometimes the itch is confined to the hands, but in others it is conveyed to the flexures of the joints, to the perineum around the anus, and in fact wherever the skin is thin and delicate. In all these situations we may have the suppurative action above named, so that occasionally, instead of a mild vesicular disease, the patient will be covered with foul, painful, ulcerating sores.

Itch never terminates spontaneously, but may last for years. In some cases it never passes the vesicular form first named, but in a majority, especially where cleanliness is neglected, it goes on to the formation of hard scales, and induration of the skin.

DIAGNOSIS.—The diagnosis of itch is generally not difficult, as the vesicles are pointed and solitary, while in eczema they are flattened, and in prurigo the eruption is first papular, as it is also in lichen, and in neither case does it appear between the fingers, the frequent seat of scabies. The sulcus passing from the vesicle in itch is a good diagnostic feature, though not usually very well marked. In the severer stages of the disease, there would be difficulty in the diagnosis, were it not for the constant reappearance of the disease in its original form.

TREATMENT.—The object of treatment is to destroy the itch insect, and whatever will accomplish this with the greatest certainty, and in the least time, will prove the best remedy. Sulphur has formed the basis of most applications, and is I believe the best remedy. We may use it in the form of ointment mixed with Lard, or with an Alkali, as,

℞ Sulphur Sub., ℥ij.
Sub-carbonate of Potash, ʒj.
Lard, ℥vi. M.

Or,

℞ Prepared Chalk, ℥iv.
Sulphur,
Tar, aa. ℥vj.
Soft Soap,
Lard, aa, ℥xvj, M.

These ointments should be thoroughly applied to the parts affected, after they have been well cleansed with soap and water. I have used a combination of,

℞ Sulphuret of Potassium, ℥ss.
Oils of Rosemary and Lavender, aa, ℥j.
Lard, ℥vj. M.

Apply as before. Cazenave states that after repeated trials they determined that the two following formula yielded the most satisfactory results:

℞ Essence of Peppermint,
Rosemary,
Lavender,
Lemon, aa. gtt. iv to gtt. vj.
Alcohol, ℥iss,
Weak Infusion of Thyme, Ovj. M.

It was freely used, and the cure resulted in eight days.

℞ Iodide of Sulphur,
Iodide of Potassium, aa, ℥iss.
Water, ℥ij. M.

The mean duration being six days. They say, whatever the lotion employed, it is necessary not only to wet the affected parts, but to prolong its application, so as to produce that kind of maceration which is required to destroy the insect. A solution of Sulphuret of Lime, ℥ij. to the pint of Water is very efficient, the cure being effected sometimes with three or four applications.

Petroleum with Balsam of Peru has been employed with very good results. Dr. Zimmerman claims that Carbolate of Soda will prove the best remedy. He employed 160 to 320 grains of the salt to about 7 ounces of water to be well rubbed into the affected parts three times daily.

In the milder forms of the disease no internal treatment is necessary, but the patient should be guarded against cold, dampness, and sudden changes of temperature, and have his entire under clothing changed every day. In the more persistent cases, we may give equal parts of Sulphur and Cream of Tartar, to the extent of keeping the bowels open, and in some cases where the patient is cachectic, the bitter tonics and Iron.

I have cured the itch with a local application of the Phytolacca, and Podophyllum, but I prefer the remedies first named.

Whatever means are employed in the cure of itch, success will follow only as we have cleanliness and an entire change of clothing. Neglect of this will prevent success with the best remedies.

ORDER III.—BULLÆ.

This order, it will be recollected, is characterized by the formation of large *blebs* or blisters, from the size of a pea to a hen's egg, sometimes with and sometimes without redness of the skin. Properly speaking, there is but one variety, *pemphigus*, but some authors class *rupia* under this order. Both affections are usually chronic, and may appear in succession, on any part of the body. We have no knowledge of their causes further than they are usually associated with a cachectic condition of the system.

PEMPHIGUS.

Pemphigus is almost always associated with general debility and imperfect performance of the various functions of digestion, assimilation and secretion, though the person may seem to enjoy tolerably good health. It makes its appearance in the form of blebs or blisters, from the size of a split pea, to an inch or more in diameter, containing a thin, transparent serum. They frequently increase in size for two or three days, the fluid becoming straw-colored, when they are ruptured, and a thin brownish crust forms. Sometimes the surface heals at once, but at others these crusts are reproduced for several days or even weeks.

DIAGNOSIS.—The diagnosis is always easy when they first appear, as in no other skin disease do we see such a large elevation of the epidermis. When they have ruptured the diagnosis is more difficult, but it may usually be distinguished from other affections by the brown, thin scab, and by the dark-red, irregular spot when it is removed.

TREATMENT.—The treatment of this affection resolves itself into that which will most quickly restore the general health. In children I have prescribed —

℞ Tincture of Muriate of Iron, ℥ss.
Simple Syrup.
Glycerine, ℥iss. M.

Given in doses of a teaspoonful four times a day. Associated with this I would administer Quinine, Hydrastine, or other bitter, in suitable doses. Where there is redness, with burning, Rhus is the best remedy that can be selected; Apis may be added if there is itching. If there is much derangement of the system, the treatment should be premised with an emetic. Strict attention should be given to the skin, by the use of a daily bath, using a Borax solution, or salt water, or if there was feeble circulation, a stimulant bath of Mustard or Capsicum. If the bullæ are large, and the surface painful when they rupture, it may be dressed with equal parts of Lime water and Linseed oil, or powdered Elm, Flour, or Hydrastis may be sprinkled on it to absorb the discharges.

RUPIA.

This, like the preceding disease, is almost always associated with a cachectic condition of the system, and enfeebled vitality, and appears most frequently among the poor, destitute and ill-fed, though occasionally when the patients have all the comforts and luxuries of life. Its only relation to the preceding disease, or to this order, is in its first appearance, and it soon loses this resemblance. It is always a chronic affection, lasting from two or three weeks to many months. Three varieties are distinguished: R. simplex, R. prominens, and R. escharotica.

SYMPTOMS.—*Rupia simplex* appears in the form of bullæ, about the size of a dime, round and flattened, and without evidence of inflammation. The contained fluid is at first a limpid serum, but it soon becomes opaque and purulent, and finally concretes, forming thick flat crusts, of a brownish color These fall off in a few days, leaving a superficial ulcer of the skin, which soon cicatrizes, but a livid-red color remains for some time afterwards.

Rupia prominens makes its appearance in a similar manner, but the bullæ are frequently larger, and the ulceration deeper, and the scales thicker. Usually the skin is reddened, and sometimes there is a burning sensation and pain. The scab seems to grow, in many cases, by continued additions at the base, and becomes one-fourth or even half an inch in thick-

ness, and conical, and resembles, to some extent, a snail's shell. When the scab is removed, a new one frequently takes its place, and they may be thus reformed for months. In some cases the ulcer is healed with difficulty, the edges being livid and tumefied, the center pale, and bleeding on slight pressure.

Rupia escharotica occurs most frequently in children up to two years of age. It commences with the appearance of slightly prominent livid patches, upon which irregular and flattened bullæ are soon formed; when the bullæ break, ulcerated surfaces are left which secrete a disagreeable, unhealthy pus. "The infant suffers from acute pain, much fever and insomnolency. When the disease assumes an intense form, death may ensue in one or two weeks. When it does terminate favorably, the ulcerations are very long in healing."—(Cazenave.)

DIAGNOSIS.—Rupia is diagnosed with ease, in most cases, by the prominent, conical, brown scabs, those of pemphigus being flat. Ecthyma resembles it most in some cases, and it will be difficult to distinguish between them in its later stages, but the hard and inflamed base, irregular scabs, and superficial excoriations, are usually sufficiently diagnostic.

TREATMENT.—If the tongue is broad, pallid and dirty give the patient Sulphite of Soda in the usual doses. If it is simply dirty, showing atony of the digestive apparatus, use the small pill of Podophyllin (gr. 1-20) and Phosphate of Hydrastia (gr. 1 4), one or two daily. In other cases we will find the Compound Syrup of the Hypophosphites, and occasionally Cod Liver Oil, excellent remedies. Here, as in other cases, the remedies that influence the skin are to be thought of, and selected according to special indications; they are the Rhus, Apis, Belladonna, Muriated Tincture of Iron, Sambucus, Iris Ver., are good. In some cases the use of Acetate of Potash, largely diluted, to increase waste and excretion by the kidneys, will give excellent results, and in others we employ the Iodides, especially the Iodide of Ammonium.

The best local application I have ever used is the Resorcin with Vaseline. Some cases will require it quite strong, as much as ʒj. to ℈j.; others, more sensitive, but grs. x to xx to the ℈j. Ichthyol and Creolin have also been used with success. Sometimes a decoction of equal parts of Cornus, Alnus and Rumex, answers an excellent purpose, or the tinctures of the

same agents may be used. When the ulcers are very persistent they may be cauterized with a saturated solution of Chloride of Zinc, or paste made with this and Hydrastis; after the slough is cast off, the part usually heals kindly with any simple dressing.

ORDER IV.—PUSTULÆ.

This order is distinguished by the formation of small elevations containing pus, and hence termed pustules. They are almost invariably situated on an inflamed base, which usually precedes the eruption, though in some cases the inflammation comes on after the appearance of the eruption, and is more or less diffused. The diseases included under this order are both acute and chronic, two of them, variola and vaccinia, heretofore described, being eminently contagious, and one, porrigo, being propagated by contact. The others seem to depend upon some unknown internal cause.

ECTHYMA.

Ecthyma may be divided into the two forms, acute and chronic, the first occurring most frequently in children and young persons, the second in the adult, though sometimes in children.

SYMPTOMS.—In the acute form it is usually preceded by lassitude and indisposition, and its appearance is frequently marked with slight chills and febrile action. It makes its appearance in the shape of red, circumscribed, inflamed spots, which soon suppurate at their apices. In some cases the eruption is attended with pain, the inflammation being quite severe, but in others it is simply a sense of stiffness. Some of the pustules terminate by resolution, whilst others are succeeded by a thick, adherent scab, which, in falling off, leaves a deep red mark, and in some cases a cicatrix. It usually lasts for one or two weeks.

In chronic ecthyma there is a successive appearance of the eruption, sometimes for months, the general health being much depressed. It may present the same character as that just described, or it may become confluent in large suppurating surfaces. A variety termed ecthyma cachecticum, occur-

in old persons and those who have broken their systems down by intemperance. "The skin is inflamed and more swollen than in the common forms of the disease. It assumes a deepened color, and in about six or eight days the cuticle is raised over the pustule, is blackish, and infiltrated with blood. It soon bursts and forms a thick, dark scab, raised at the center; the edges are hard, callous, and more or less inflamed. The scabs are very adherent, and do not become detached for several weeks, sometimes for months. If they fall accidentally, an unhealthy ulceration ensues, and the scab is with difficulty removed. Sometimes febrile symptoms precede or accompany the eruption, but they generally disappear with the disease."—(Cazenave.)

DIAGNOSIS.—Ecthyma is usually recognized with ease by the hard and inflamed base, suppuration commencing on the surface, and not deep as in furunculi, acne, and sycosis, which are most frequently mistaken for it, but in these the base is hard, not inflamed, and the pustules are small and slowly developed.

TREATMENT.—In the acute form of the disease, we would give mild laxatives, the special sedatives if there was fever, and a solution of Acetate of Potash in full doses. The warm bath is sometimes useful, and may be frequently repeated. In the chronic form of the disease, the patient may have five grain doses of a 2d trit. of Sulphide of Calcium, or we may think it better to give Sulphur for a week or two, so that it will prove gently laxative. When the tongue is broad and pallid, Sulphite of Soda is the remedy. When isolated spots are persistent, we may use Ichthyol or Resorcin. In the ordinary case, keeping the skin cleansed with a solution of Borax and dusted with Bismuth will give prompt relief. When a fatty material seems best Vaseline furnishes the base, and is much better than the older ointments. It is not absorbed like lard or lanoline.

IMPETIGO.

Impetigo has been divided into several varieties, but it will only be necessary to notice three of them: I. figurata, I. larvalis, and I. capitis. They are all characterized by the devel-

opement of groups of pustules which rupturing give rise to the formation of thick, yellowish scales.

Impetigo figurata appears most frequently upon the face, though it may attack any part of the body, in young persons; at first as red, slightly raised patches, upon which soon appear numerous pustules, scarcely raised above the skin, and nearly confluent. The eruption is attended with heat and itching, which is increased when the pustules rupture, about the second or third day. The fluid is abundant, and soon dries, forming thick, yellow incrustations which continue for one or two weeks, sometimes increasing in thickness, and when thrown off, a red, tender surface remains for a considerable time.

Impetigo larvalis usually appears upon the face as an eruption of numerous small pustules of a light yellow color, situated on a red surface. In a day or two they break, giving rise to an ichorous discharge which forms yellow or greenish, rough, laminated scabs. The eruption extending by new eruptions of pustules, it may pass over almost the entire face or extend to the other parts of the body. It is attended with considerable itching, and a sensation of burning and smarting when the scabs are removed. Frequently we find the scabs reproduced if prematurely removed, and the surface remains red for some time after it disappears. "In other cases the pustules are larger, and are developed behind the ears, round the mouth, upon the chin, etc., terminating in thick, yellowish-green crusts. In some instances the mouth is surrounded with large and thick, yellowish incrustations, which are of a deep brown color in some parts where the fluid is mixed with blood. The movements of the lips are exceedingly painful in these cases. In other instances, again, these large incrustations form only behind the ears. When the disease begins to decline, the exudation gradually diminishes, the scabs are not formed so frequently, they become thin and white, their bases are paler, and they are soon succeeded by slight desquamation, which is not long in disappearing."

Impetigo capitis is the severest form of the disease, and somewhat resembles *tinea capitis*, especially when severe. It may be confined to a small portion of the scalp, or involve the entire surface. It comes out in closely set pustules, which, rupturing, throw out a thick, viscid fluid, which mats the hair

together, forming irregular brownish-yellow scabs. When the head is not properly cleansed, the hair becomes saturated with the secretion, and gives rise to a most disgusting smell, and occasionally lice accumulate, and greatly aggravate the pruritus and suffering. Occasionally the irritation of the scalp becomes so severe that small subcutaneous abscesses form and require opening. If the scabs are carefully softened and removed the surface is seen to be but slightly reddened, but from a vast number of pores a nauseous, viscid fluid is exuded.

DIAGNOSIS.—Impetigo figurata and larvalis are distinguished by their small, yellow pustules, thick, rough, yellowish-green scabs; from porrigo or tinea favosa, it is distinguished by the pustules of the latter being imbedded in the epidermis, and terminating in umbilicated scabs.

TREATMENT.—The general treatment will have to be carefully selected, according to the indications for remedies. When the eruption is preceded with heat and itching, I should use ℞ Tinct. Veratrum gtt. x, Tinct. Rhus gtt. x, Water ℥iv; a teaspoonful every two hours. If it is evident there is a failure of water through the kidneys, no remedy will give greater satisfaction than a solution of Acetate of Potash. Occasionally we make a good beginning by the use of small doses of Sulphur, to give one or two characteristic operations a day, and follow with Iris in the usual doses. In place of this the Sulphide of Calcium may be used, and if there is a want of tonicity in the skin, small doses of Fowler's Solution.

Commonly we use a solution of Borax to cleanse the skin, and dust the parts with Sub-nitrate of Bismuth to allay irritation. Or we may employ a decoction of equal parts of Cornus, Alnus and Rumex; or, if there is much irritation of the skin, we may use the poultice of a decoction of Cornus and Wheat-bran. In some cases emollient poultices will have to be continued for some time before other means can be used. In the more protracted cases, the Sulphur ointments, named under the head of scabies, may be used with good effect, though they frequently are of advantage in the earlier stages.

In impetigo capitis, emollient applications should be used to soften the scales and remove irritation, and the head

should be thoroughly cleansed. Then apply twice daily ℞ Resorcin ʒj. to Vaseline ℥j., thoroughly rubbed together; or Ichthyol ʒj. to ℥ij., Vaseline ℥j. In all cases the hair should be cut close, and cleanliness strictly observed. The Sulphur ointments may be used in this case with advantage, and, should they not succeed, we may use the Oxalic Acid and Creosote wash, named under the head of tinea capitis. The new combination of Iodine and Thymol will be excellent.

ACNE.

Acne occurs most frequently in persons between the age of puberty and thirty-five, appearing on the back and face, and sometimes the neck and shoulders. The causes of this affection are very obscure, and in many cases it does not seem to be connected with any derangement of the general health. It has been divided into three varieties: A. simplex, A. indurata, and A. rosacea, which differ materially in their symptoms and progress.

Acne simplex is confined almost entirely to the young, appearing about the age of puberty, in the form of small, red indurations, which soon become pustular, and are surrounded by a red areola. They are rarely painful, except occasionally on the face or forehead, and disappear with the formation of a thin scab, which, on being removed, leaves a slightly elevated red spot; six or eight days is usually occupied in their eruption and disappearance, but successive crops may appear for months or years.

In *acne indurata* the induration is much more marked, and in severe cases forms livid, red, indurated tumors, which are painful when pressed upon. Suppuration proceeds slowly and small scabs are formed on the surface; in some cases the cellular tissue is involved, and the induration remains for some weeks.

Acne rosacea is most generally met with after middle age, and most frequently in those who have impaired their constitution by intemperance, or dissipated habits. It makes its appearance in the form of irregular, deep-red blotches, most frequently on the cheeks, with slight indurations at certain points, upon which pustules make their appearance. In some persons the nose is more especially affected, the tip becoming bluish-red upon any indiscretion in diet, and at last perma-

nently so, giving the face a very peculiar and unpleasant appearance. Small pustules form at different points, but do not suppurate freely.

At last "the veins become varicose and form bluish irregular lines, which contrast with the intense red or violet color of the diseased surfaces." In some cases it passes to the cheeks, lips, or chin, giving the countenance a very disagreeable appearance.

DIAGNOSIS.—The slow development of the pustules, and their situation on a hard base, is usually sufficiently diagnostic; whilst in ecthyma, which most closely resembles it, the pustules are larger, never accompanied with chronic induration, and form thick, elevated scales.

TREATMENT.—Acne simplex requires but little treatment. If the patient is very desirous of getting rid of the unpleasant appearance we would give an occasional cathartic of Bitartrate of Potash, and a very small portion of Podophyllin, and a solution of Acetate or Citrate of Potash. The entire surface may be bathed every day with cold water, and well rubbed with a coarse towel. For the face I usually recommend the Glycerine lotion.

In acne indurata we might use the Sulphide of Calcium, alternated with Rhus and Veratrum. Iris has proven a good remedy in some cases, sometimes with the addition of Donavan's Solution of Arsenic. Occasionally washing the blood out with the alkaline diuretics is a good commencement, and it may be Sulphur and a Sulphate of Soda to a laxative condition of bowels will be an advantage. As a local application nothing will prove better than frictions with an ointment of Iodide of Sulphur, fifteen to thirty grains to the ounce of Lard. The common Black Salve of the Dispensatory is an excellent application, as is the Mayer's Ointment.

In acne rosacea the best we can do is to recommend an avoidance of excesses of all kinds, that the food should be plain and light, and a simple Glycerine lotion applied to the part to relieve irritation. In some cases continued attention to these points, with the use of the general tepid bath, will result in a permanent cure, or at least the disease will be much mitigated.

MENTAGRA.

Mentagra, *sycosis* or *barber's-itch*, has its seat in the sebaceous follicles which are attached to the bulbs of the beard, and may appear on every part of the face where the hair grows, though most frequently on the chin and lips. It comes out in the form of small, red indurations at the root of the hair, which soon suppurate, and at length burst, forming slight brown crusts through which the hair passes. When the eruption is extensive, both the skin and cellular tissue become inflamed and indurated, giving rise to considerable heat, stiffness and pain. The entire chin or lip will be occasionally found so involved that it seems to be a mass of disease, nearly every hair having its suppurating pustule. It is essentially chronic in its character, and may last for months or years, and is sometimes very intractable.

DIAGNOSIS.—The induration at the root of the hair, and the manifest implication of the hair bulb and follicles, the hair seeming to rise out of the center of the pustule, is the most characteristic feature of the disease. In *ecthyma* the base is more inflamed, and the pustules larger, and in *impetigo* the pustules are in groups, while in this affection they are distinct and accuminated.

TREATMENT.—The most successful plan of treatment that I have seen tried is the use of the brown Citrine Ointment, in the proportion of one part to two or three of simple cerate, thoroughly rubbed in once or twice each day. The beard should be cut with scissors, and no soap should be applied to the face on any account, but it should be kept clean by using a lotion of equal parts of Glycerine and Rose-water. A solution of Sulphate of Zinc has been employed in some cases, as has the Oxalic Acid; the first may be used from ten grains to the ounce of water, to a saturated solution, and the second, from ten to twenty grains to the ounce of water. In one case of inveterate sycosis, the persistent use of a decoction of equal parts of Alnus and Rumex, taken internally and applied locally, with the use of Glycerine, effected a permanent cure. When other means fail, if the disease is circumscribed, we may effect a cure by extracting the hairs with a pair of forceps. It is a painful operation, and a slow one, but very certain.

PORRIGO.

Porrigo or *tinea* is a disease of the scalp, and is generally known by the name of *scald head*. It is undoubtedly contagious, and is propagated from one to another by contact; hence, the necessity for care in the use of articles of clothing, combs, brushes, towels, etc. Two varieties are distinguished, P. favosa, or tinea capitis, and P. scutulata, or tinea annularis.

Porrigo favosa comences with an eruption of minute, round, yellow pustules, which seem to be imbedded in the skin. At first they are distinct and situated on a hard base, but as the disease progresses they become confluent, the entire scalp being inflamed or indurated. In a short time after their formation the yellowish fluid begins to concrete, and when they are distinct forms a scab, with a marked depression in the center, but when close together, they form one large scab. If this is allowed to remain, it becomes thick, whitish and brittle; if removed, slight erosions are seen under it, and it is not reformed, except by the appearance of a new crop of pustules.

"This affection is never accompanied with febrile symptoms, but a troublesome and annoying itching is often present during its progress, which is aggravated by want of cleanliness. A number of lice are often seen under the scabs, causing the patients to scratch themselves, and by this means increase the inflammation. In these cases there is a strong, disagreeable odor, similar to that of cat's urine, given off from the head. After the head is cleansed from the scabs the odor becomes sickening. The excoriations on the surface, which often reach to the hair bulbs, and thus produce baldness, are not covered with the regular cup-shaped favus pustules, but a reddish and fœtid sanies oozes out, which concretes into irregular-shaped scabs. Fresh pustules, however, soon appear, which gives rise to fresh favus scabs. Small subcutaneous abscesses may sometimes appear, accompanied with sympathetic engorgement of the lymphatic glands of the neck. It has been remarked that the growth of those persons who have been affected with porrigo is often arrested, and the development of the mental as well as the physical powers, is slow and imperfect. The duration of the disease is very variable and uncertain; and the hair, when reproduced, is rarely the same as the original, either in color or consistence."—(Cazenave.)

Porrigo Scutulata commences with the appearance of red circular patches, upon which small yellow pustules are soon developed. Each pustule has a hair passing through it, and has the same cupped appearance as in the preceding variety; and they appear more frequently upon the circumference of the spot than at its center. The scabs increase in thickness for some time, and when removed, a large furfuraceous patch with an uneven surface is left, from which the hair frequently falls off. It spreads by spontaneous development, or by inoculation of other parts by scratching; marked, and sometimes intense itching attending the eruption. Like the preceding affection, its duration is variable, but if allowed to run its course, it would probably continue for years, resulting in permanent baldness.

DIAGNOSIS.—The presence of the small, rounded, yellow pustule, depressed in its center, is the diagnostic feature of both forms. Porrigo scutulata is determined by the appearance of the eruption in circular patches, though when these are numerous, they are so crowded together as to cover the entire surface, and the distinction then between this and porrigo favosa can not be made out.

TREATMENT.—Cleanliness is of major importance in this affection, and to secure it we would have the hair cut close, and the head frequently washed with Castile soap and water. It may be necessary at first to soften the incrustations by continuous emollient applications, or in some cases with poultices, using soap and water freely in the meantime. Having thus exposed the scalp, we would apply,

℞ Oxalic Acid, grs. x. to grs. xx.
Creosote, gtt. x.
Water, ʒij. M.

Follow it in half an hour with free inunction of mild Zinc ointment. The ointment of Iodide of Sulphur is a very efficient remedy, and when used should be gently rubbed over the parts night and morning, the scalp being kept perfectly clean by the use of soap and water. Both Resorcin and Ichthyol have been used in tinea with success, and I should try them if a case presented.

As regards internal remedies, we will find it necessary to give the vegetable alteratives heretofore named, associated

with some preparation of Potash, as the Iodide, Acetate, Carbonate, etc. Usually, the bitter tonics and Iron will be required to some extent, and occasionally Cod-liver Oil will prove beneficial.

ORDER V.—PAPULÆ.

This order is characterized by small, firm, solid elevations of the skin, always attended with more or less itching, and never contain pus or serum, though occasionally from irritation these surfaces become ulcerated and covered with incrustations. They are developed without any appreciable cause, are rarely attended with febrile symptoms, and are not contagious. They are most generally chronic, but sometimes acute. Two diseases are included under this order—lichen and prurigo.

LICHEN.

Lichen appears as small, hard elevations, but slightly red, or of the color of the skin, and attended with severe pruritus. We may distinguish three forms: L. Simplex; L. agrius, L. urticatus.

Lichen simplex comes out in the form of small and aggregated papulæ, being attended with severe itching, and sometimes burning. It most frequently appears on the face and arms, and the neck and breast, though it may extend to all parts of the body. They remain stationary for three or four days, when the redness gradually declines, there is slight furfuraceous desquamation, and the disease terminates in seven or eight days, unless there is a new eruption. In many cases, it continues for weeks or months by the appearance of successive crops of papulæ.

Lichen urticatus usually appears suddenly in the form of large and numerous papulæ, attended with a burning, distressing pruritus. It appears most frequently on the face, neck, and extremities, and is irregular and transitory, subsiding and reappearing with great rapidity. "The papulæ are clustered, and they are either white or surrounded by a faint-red areola: sometimes they are prominent, and considerably inflamed, and at first bear considerable resemblance to flea bites." When scratched or otherwise irritated, they frequently bleed, and

dark scabs form on their surface. The eruption may disappear with one crop of papulæ, but it is occasionally very obstinate, lasting for months, by their successive reproduction.

Lichen agrius may appear spontaneously, or it may succeed lichen simplex. When it appears spontaneously, the papulæ are very small, red, accuminated, inflamed and developed on an erythematous surface of limited extent, which is generally attended with heat, and painful tension. Instead of subsiding on the fourth or fifth day, they continue increasing: slight ulcerations form on their apices, whence issues a sero-purulent fluid, which concretes and forms yellowish, prominent crusts, soft and slightly adherent. These incrustations fall off, and are then replaced by thin, scaly scabs. Sometimes the redness diminishes, the inflammation disappears, slight desquamation ensues, and the disease terminates about the twelfth or fifteenth day. But frequently the discharge continues, and new crusts are formed, by which the disease is prolonged considerably. The itching which accompanies it is often so intense that the patient seeks the hardest substance to rub himself with, and thus invariably aggravates the pruritus. It may continue in this manner for several weeks, or it may pass into the chronic state, when the scaly incrustations disappear, and are succeeded by slight exfoliation, and the skin is often considerably hypertrophied. This form may last for months. (Cazenave.)

DIAGNOSIS.—The diagnosis of lichen is very difficult, as it may be mistaken for eczema, porrigo, scabies, or impetigo, but it may usually be determined by the presence of some of the characteristic papulæ.

TREATMENT.—In lichen simplex I prescribe Sulphur with Crab-orchard salts to its laxative action, and a warm bath, to which Borax has been added. In lichen urticatus the use of Apis and Rhus will relieve the itching, and Iris will follow this up to a complete cure. In some cases the indications will be for Sulphite of Soda; in others, with tendency to suppuration, it will be Sulphide of Calcium, more rarely Fowler's Solution of Arsenic. Resorcin gr. x to Vaseline ℥j. is a good application.

Lichen agrius is more difficult to manage, and no remedy seems to answer in all cases. In some, I have had very good

success with Glycerine and Tincture of Muriate of Iron, in the proportion of three parts of the first to one of the last, given internally in teaspoonful doses four times a day, and applied to the affected parts three times a day. A lotion of Muriate of Ammonia has been frequently employed, composed of,

℞, Hydrochlorate of Ammonia, ʒj.
Vinegar, ʒiv.
Water, Oj. M.

Apply freely to the affected parts. In some cases the internal administration of the Tincture of Corydalis, with Iodide of Potassium, and a wash of a decoction of equal parts of Cornus, Alnus and Rumex, has answered a good purpose. In other cases a lotion of,

℞, Glycerine, ʒij.
Oxide of Zinc, ʒss.
Morphia, gr. v.
Rose Water, ʒiv. M.

Has answered an excellent purpose, as has the ointment of Elder and the mild Zinc Ointment. In other cases, good results will be obtained by the internal use of Sulphur, and its local employment as a bath, wash, or ointment.

LICHEN AMERICANA.

A peculiar skin disease has prevailed extensively in this country during the past few years, and is known by the common names of *Soldier's itch*, *Illinois scratches*, *prairie digs*, etc. Though so widely distributed, and so intractable to much of the treatment adopted, I have yet to see the disease properly described and classified in any of our best works on practice, or in medical periodicals. Hence I have taken the liberty to give it a name, which will at least designate it until something better offers.

Many have thought that it was a new disease; but, as in the case of spotted fever, diphtheria, etc., we find that it has prevailed before in about the same form, and running the same course. Thus professor Jones treated it in 1845-7, and it was observed as early as 1812.

I have placed it in order V., *papulæ*, and designated it *lichen*, because it is certainly papular at its commencement, and more nearly resembles lichen agrius than any other disease described by Cazenave. Like many other diseases of the skin, it changes its character as it advances, becoming *vesicular*, *pustular*, and in some cases *squamous*.

CAUSES.—The disease undoubtedly has its origin in a want of cleanliness; and the same cause favors its propagation. In some cases it is markedly contagious, and is thus propagated from person to person by contact.

SYMPTOMS.—It makes its appearance with an intense itching where the skin is delicate, as at the wrists, the entire surface of the fore-arm, the elbow, and often the axillæ, breast, inside of the thighs and posterior of the legs. There is but one exception to this selection of delicate skin, and that is the back and nates where it is sometimes very severe.

If examined at this early period, we will notice small white papulæ on a reddened base; though individually small, yet they are sometimes aggregated so as to form considerable patches.

The next stage of the disease is undoubtedly the result of irritation from scratching. The heat and itching increase, the part is more reddened, and small vesicles filled with a limpid serum form on the papulæ. These are speedily ruptured by the efforts to relieve the itching, and the fluid exuding, a thin crust is formed.

Continuing to rub the part, the irritation increases, and as the crusts are removed, the exudation assumes more and more a purulent character; and the crusts become heavier, and the excavation deeper. Finally, we have a surface ulcerated in varying degrees, and continually reproducing the foul crusts with which it is covered.

In the advanced stage of the disease, we sometimes observe true pustules making their appearance, intermingled with the vesicles.

Thus the disease extends from part to part, with a corresponding increase in the size of each point of eruption, until, in some cases, the patient is one-half encrusted with the foul exudation.

When it continues long, the skin becomes thickened, especially at the flexure of the joints, and presents many of the symptoms of *psoriasis*.

In many cases there is no constitutional affection, the general health being very good. But occasionally with children, a cachexia is developed, showing bad blood and imperfect nutrition. In severe cases the lymphatic glands are affected, and may go on to suppuration.

DIAGNOSIS.—There is hardly any other disease that this can be mistaken for, except *scabies*. The eruption makes its appearance at first as distinct papulæ; the vesicles follow from irritation, and finally ulcerate from the same cause.

In true *itch*, the vesicles are pointed and solitary. It appears first between the fingers, and the sulcus leading from the vesicle, containing the acarus, may be seen.

PROGNOSIS.—This disease is sometimes very stubborn; and unless the patient follows directions implicitly, it will resist the best selected remedies. In the early stage we may arrest it in the course of one week; in the pustular stage it will require two to four weeks, and in the squamous stage as many months.

TREATMENT.—I am well satisfied that the most important element in the cure of this affection, is cleanliness of person, and frequent change of clothing, with such thorough renovation as will free them from the virus. With this, simple means are sufficient. Without it, the disease is protracted, and sometimes incurable, even with the best treatment.

In the majority of cases no constitutional treatment is necessary. But in feeble and cachectic children, where the apetite is poor and digestion bad, a tonic and restorative treatment will be required. I usually prescribe,

℞. Tincture of Muriate of Iron, ℥ss.
Glycerine, ℥jss.
Simple Syrup, ℥ij. M.

A teaspoonful three times a day, alternated with Tincture of Iris in the usual doses.

The local treatment will vary in different cases according to the irritability of the part, or the degree of irritation present. When the surface is very sensitive, and erythematous inflammation is readily developed, I prefer the use of the Glycerole of Tar, applied twice daily. The affected surface is cleansed with Glycerine soap each morning before the first application.

If the parts are not sensitive, then we may use a treatment similar to that advised for scabies. A lotion of Sulphurous Acid, of a solution of Sulphuret of Calcium, or Carbolic Acid may be employed. I like the last very much, and usually prescribe it in the following form:

℞, Carbolic Acid, (crystals,) gr. xl.
Glycerine, ʒiv.
Oil of Cinnamon, gtts. x.

The most recent local treatment is the use of Resorcin or Ichthyol with Vaseline.

PRURIGO.

Several varieties of this disease are described, but many of them are named, not from any prominent difference of symptoms, but more on account of their location. The disease is characterized by the appearance of papulæ, usually larger than those of lichen, and without discoloration of the skin, which are attended by very severe pruritus, and sometimes burning. Three varieties may be named: P. mitis, P. formicans, P. senilis.

Prurigo mitis is the mildest form of the disease, and is usually acute. The papulæ are slightly prominent, but very small, and are accompanied with intense itching. In prurigo formicans the papulæ are much larger, and flattened, and distinct, and accompanied with an intolerable pruritus, which increases at night, and by the warmth of the bed. If not irritated by scratching, they frequently disappear in the course of one or two weeks, but frequently the skin is torn in the efforts for relief, and the part bleeds, and a dark thin scab is formed on its surface. It may continue for a considerable time by continued development of the eruption. In old people, or in weakly children, the papulæ are frequently large and prominent, and the skin becomes thickened and inflamed; vesicles, pustules and boils form, and, being opened by scratching, give rise to unpleasant excoriations and superficial ulcers, and a most intense burning and itching. It may thus last for months, or even years. Prurigo may attack any part of the body, but is most severe when it attacks the genital organs, or is situate around the anus.

DIAGNOSIS.—Prurigo may be distinguished from lichen by its larger papulæ, and the dark incrustations which are sometimes formed on them; from scabies by the accuminated vesicles of the latter, and their rose-colored base. It may be associated with lichen, scabies, eczema, impetigo and ecthyma, and in such cases the diagnosis will of course be difficult.

TREATMENT.—In the milder forms of the disease, the removal of any internal irritation, and soothing local applications are all that is required. Frequently it is desirable to keep the bowels open with a saline purgative, and give an alkaline diuretic, with some gentle diaphoretic. As a local application, the Glycerine lotion will answer a very good purpose; or we may use it with Chloroform, adding ten or fifteen drops of it, to each ounce of the lotion. A solution of Borax answers a good purpose, as,

℞ Borax. ʒij.
Morphia. gr v.
Rose-water, fʒvj. M.

A solution of Salicylic Acid with Borax and Morphia, is frequently beneficial.

When the disease is persistent, we use internally the Apis, Rhus, Belladonna, Iris, as indicated. Small doses of Sulphur, Sulphite of Soda and Acetate of Potash, promote retrograde metamorphosis and excretion. A trituratis of Sulphide of Calcium is also good.

As remedies to improve digestion and nutrition, I like Tincture of Muriate of Iron ℥ss. to Simple Syrup ℥iijss., or the Compound Tonic Mixture heretofore spoken of.

The local treatment will be the same as that named above, or we may use Ichthyol with Vaseline, or the Glycerole of Tar.

ORDER VI.—SQUAMÆ.

This form of skin disease is characterized by the formation of scales upon a thickened and reddened portion of the skin. In some cases they seem to result from change in the function of the epidermis, and at others to be formed by the desiccation of the secretions of the part. They are always chronic, and usually very persistent. The causes giving rise to them are unknown, and they are not confined to any class of society, age or sex. Four diseases are grouped under this order: lepra, psoriasis, pityriasis, and ichthyosis, the first and the last being of very rare occurrence.

LEPRA.

Lepra most usually appears in the neighborhood of the joints, in the form of small red shining spots, a little elevated above the skin. In a short time they lose their smooth appearance, and become covered with thin scales which are constantly falling off, and being renewed. They increase in size, maintaining their circular form, until they are two or three inches in diameter, and the skin becoming thick and hard, movement of the joint is frequently impeded. The disease may extend to any part of the body, and in some cases will cover a considerable portion of the surface. In rare cases ulcerations occur, the result being the formation of unpleasant cicatrices. It may subside of itself, gradually disappearing in the course of two or three months, or it may disappear and return quickly again, but in many cases it persists for years.

DIAGNOSIS.—It is usually diagnosed with ease, the appearance of the eruption in small circular patches, at first near the joints, and its gradual increase in size, being regular in its outline, with the scaly secretion, is sufficiently distinctive.

TREATMENT.—No remedy has given me so much satisfaction in these inveterate skin diseases as the Iris Ver. I usually prescribe ʒj. to ʒij. to water ℥iv.; a teaspoonful every three or four hours. One must have patience, and soon it will be observed that the redness fades, and the skin becomes smooth. It may take six months, but the result is sure. If there is impaired general health, the Compound Tonic Mixture, Muriate of Iron or, with lax tissues, Fowler's Solution should be used. There is occasionally a case in which the laxative action of Sulphur and Sulphite of Soda is a very good preparation for Iris.

If the surface seems harsh, as is sometimes the case, we would use the general vapor bath, followed by the cold douche, and brisk friction, or the tepid or warm water sheet pack, followed by the douche, and friction as before These means should be repeated daily in some cases, and once or twice a week in milder ones, and should be continued until the surface becomes soft and natural. To the affected part we may apply,

The local application may be the Resorcin with Vaseline, of that strength which is best borne, or instead of this the Ammonia-Ichthyol, if the skin is very irritable.

Occasionally a dry dressing seems much the best, and take the range from Starch to Sub-Nitrate of Bismuth—the last has given me very satisfactory results. Aristol has proven a good remedy when used as a powder. If a solution is thought best, Prof. Jeancon's Tetra-Iodide of Thymol, in oil, will be good.

PITYRIASIS.

Pityriasis is a chronic inflammation of the skin, attended with abundant furfuraceous desquamation. Its most frequent seat is the scalp, or parts covered with hair, and when the scales are removed, the part is seen to be slightly reddened in spots.

Pityriasis capitis is most frequently seen in children, and is attended with but slight itching, and continued exfoliation of the epidermis. It is sometimes very persistent and intractable.

In *Pityriasis rubra*, the disease appears in small red spots, which being aggregated form large patches, which are usually hard, but sometimes of a normal softness. These patches soon become covered with minute scabs, which are continually being thrown off and reproduced.

Pityriasis versicolor appears in the same manner, but is distinguished by the variegated yellow discoloration of the cuticle.

DIAGNOSIS.—Pityriasis is usually recognized easily, as there is but little structural change of the skin, and continued and abundant furfuraceous desquamation.

TREATMENT.—The treatment will be the same as psoriasis, which see.

PSORIASIS.

Psoriasis is a species of chronic inflammation of the skin, in which, in addition to some change of structure, there is a continued formation and exfoliation of whitish scales. The causes of this disease are unknown, though sometimes it seems to be hereditary. Three varieties are named: P. Guttata, P. diffusa, and P. inveterata.

Psoriasis guttata appears in the form of small red patches, irregularly rounded and elevated above the adjacent skin, and though they are almost always aggregated so as to form patches of considerable size, yet there is a distinct division between them, in which the skin retains its usual color. These patches are covered with thin scales, which are easily removed, and rapidly reproduced. It is met with on any part of the body, and is attended with slight itching, which is increased by the warmth of the bed. It occurs most frequently in young adults, and is rare either in childhood or old age.

Psoriasis diffusa occurs in the form of flat, angular irregular and larger patches than the foregoing. They are at first red, of a papular form, and distinct; they speedily unite, and form continuous surfaces, covered with thick, whitish, and pretty adherent scaly incrustations. Although it may appear on every part of the body, the limbs are much more frequently affected than any other part. It is by no means uncommon to see one continuous patch covering the whole of the anterior surface of the leg, or the posterior aspect of the forearm. The elbows and knees are constantly affected, and even when it has disappeared from every other part of the body, it will remain fixed in these regions, from which it will be difficult to remove it. It is generally preceded by slight constitutional disturbance, together with a troublesome, severe itching, which, however, soon subsides, and disappears when the eruption is developed.

In some cases the patches are not inflamed, and the patient merely complains of slight formication; but in a few rare instances there is considerable inflammation present; the patches are prominent, and the scales thick, and painful fissures and chaps are established, which annoy the patient considerably. It generally attacks adults; nevertheless it sometimes occurs in young children, and its progress in these cases is often remarkably rapid. It is always a severe and intractable disease, lasting for months and even years.

"*Psoriasis inveterata* is the same affection as the foregoing, but of a more severe form. It occurs most frequently in aged persons, and in broken-down constitutions, and often attains a high degree of intensity. The skin becomes thick, hard and hypertrophied; it is split in different directions, and the scales are no longer of the usual size and thickness, but a sort of furfuraceous desquamation takes place, which fills up the furrows

or fissures, and is readily detected. Sometimes, in these cases, the morbid surfaces are entirely deprived of scales, and are red slightly inflamed, and furrowed in every direction. On pinching up the skin between the fingers, it is found to be deeply altered, and feels rough, hard and uneven. The eruption is sometimes confined to the limbs; in other instances, it spreads over the whole body; and in some rare cases, the patient seems as if encased in a scaly envelope. The slightest movement of the joints produces deep, bleeding and painful fissures. The nails are also affected, and are misshapen, rough and ragged; they split into pieces and are replaced by scaly incrustations." —(Cazenave.)

Psoriasis sometimes appears about the angles of the eyes, and on the lids, giving rise to considerable irritation and swelling. Occasionally it extends to the conjunctivæ, occasioning a most obstinate conjunctivitis; in these cases it is denominated *psoriasis ophthalmica*. At other times it attacks the lips, which become dry and corrugated, fissures of greater or less depth, passing from the margin of the lip outward. It usually extends for half or three-quarters of an inch around the mouth, and in addition to the dryness, hardness and continued desquamation, there is a dusky-red discoloration, which gives the countenance a very unpleasant appearance; this has been named *psoriasis labialis;* it may attack the prepuce in a similar manner, rendering it hard and rough, and so corrugated that it cannot be drawn back from the glans, without very severe pain and bleeding, and in some cases produces permanent phymosis—psoriasis præputialis. These varieties are usually very stubborn and difficult to manage, and give the practitioner a great deal of trouble.

Psoriasis palmaris, grocer's or *baker's itch*, commences with the appearance of firm red points in the palm of the hand, accompanied with a sensation of itching and burning. These spots are soon covered with whitish scales, which, when removed, leave a purplish-red spot.

It generally extends from the circumference until it involves the entire hand, leaving it purple, hard and chapped; so much so at times, that the blood gushes from the hands when using them, or they are so stiff, that they cannot be used at all. When it attacks the back of the hands it is termed *psoriasis dorsalis*, and does not differ from the foregoing further than that

the patches are larger, harder and drier; extending to the articulations, it gives rise to deep and painful fissures.

DIAGNOSIS.—From the description above given, the reader will have but little difficulty in its diagnosis. The patches are always elevated in the center, whilst in *lepra* the center is depressed, and in *lichen*, we will always be enabled to determine the papulæ.

PROGNOSIS.—*Psoriasis* is a difficult disease to cure, and requires much time and perseverance, yet a large majority of cases will yield to treatment. *Psoriasis inveterata* is the most difficult, and in many cases, it will not yield to remedies.

TREATMENT.—I have had an unprecedented success the past few years in the treatment of pityriasis, and a few cases of psoriasis with the following treatment: the patient was first thoroughly impressed with Sulphur, twenty grains being given twice or three times a day. It would give papescent stools with the characteristic odor. After one or two weeks of this, Tinct. of Iris would be given with only an occasional dose of Sulphur.

Should the appetite or digestion be impaired the Sulphur would be stopped, and the Compound Tonic Mixture given.

Resorcin was relied upon as the local remedy. Sometimes the best effect was obtained from the weak application—grs. x to Vaseline ℥j. Occasionally the strength was made as much as ʒij. to the ℥i. It will be remembered that it requires thorough trituration and admixture. First the Resorcin is finely powdered, and then the Vaseline is added in small portions, the trituration being continued. In pityriasis capitis, the hair is carefully separated, and the Resorcin rubbed in with the finger.

ICHTHYOSIS.

Ichthyosis, or the *fish-skin* disease, is not an accidental alteration of the skin, but an organic change in its development. The causes of it are unknown, but it is frequently congenital, or at least there is the commencing change in the skin at birth, which results in ichthyosis. It is a very rare form of disease,

and is seldom or never met with in a lifetime's practice. It is characterized by a peculiar dry and harsh appearance of the skin, and the development of hard, dry, imbricated scales, of a dirty red color, unaccompanied by heat, inflammation or any unpleasant sensation. It appears principally on the external aspects of the limbs—round the joints, on the knee and elbow, on the upper part of the back, and on those regions where the skin is naturally thick and coarse. It is most usually general, but is sometimes limited to a particular part, especially where, it is accidental, sometimes affecting the arms and legs only. It is generally a congenital disease, and lasts through life When fully developed, its appearance is so peculiar that it can not be mistaken for any other affection. When congenital, it is incurable, but when accidentally developed, it may be arrested, though it is said to be very intractable. The treatment recommended for lepra and psoriasis may be used in these cases.

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