

Osteopathic Therapeutics.

Diagnosis

By John Martin Littlejohn

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Every great institution is the lengthened
shadow of one man—EMERSON.

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O S T E O P A T H I C T H E R A P E U T I C S .

D I A G N O S I S

The foundation of osteopathic therapeutics is diagnosis. The only original thing is the osteopathic etiology which not only embraces the cause, but associates all subsequent results with the original cause. Osteopathic diagnosis is:

(1) Method of Exclusion, i.e., going over all the symptoms and comparing these with the symptoms of the different diseases, excluding all the symptoms that do not correspond to the disease to be diagnosed. A complete record should be made of the symptoms. After a record has been made a comparison should be made with the diseases that have similar symptoms and gradually exclude the symptoms that do not correspond. By this method one is able to exclude all but two or three symptoms;

(2) The differential method may be employed by comparing the analogous points to those points that are contrary, e.g., in scarlet fever and measles, the eye symptoms, eruptions, fever, throat symptoms, etc., would be contrary;

(3) The individual method is where the symptoms of the individual are taken into utter care and divided into Subjective and Objective Symptoms. The Subjective Symptoms are those that can be observed by the patient, i.e., if the patient is thirsty he is able to give thirst as a symptom, while if he did not give the symptom the physician would not be able to observe it. Mental symptoms are subjective and of the first order. They predominate over every other symptom because the mind controls the body, e.g., in typhoid fever the patient has a mental wavering which is a very serious condition. Without delirium in typhoid fever the patient has better chances for recovery. A Comatous condition is very serious especially in nervous diseases. Objective Symptoms are observed by the physician in distinction of those observed only by the patient, e.g., the pulse rate, temperature, osseous and muscular lesions, etc. The latter represents the anatomical side of diagnosis;

(4) The purely physical method. Here there is no symptomatology. It represents the physical and mechanical abnormalities. A symptom that can be distinguished from the physiological sign represents an evidence of the abnormal condition of the body.

Pathology includes the abnormal and morbid physiology, representing a change in the functioning of the body or its organs, and the morbid anatomy representing a change in the histology of tissues. Etiology may be either structural or functional.

In diagnosis of disease it is always important to distinguish between acute and chronic. An acute disease represents a sudden derangement of certain of the vital processes. The manifestation being the acute symptoms. Among these are high temperature, rapid pulse, quick collapse, great emaciation, etc. Chronic cases are those that have been going on for some time.

Additional Notes.

When cartilage is ossified in certain joints it is curable. When cartilage is destroyed, nature unites these bones and should not be interfered with.

Do not attempt to break up adhesions in tubercular joints.

Thermal apparatus consist of following centers --

Thermogenic;

Thermolytic;

Thermotoxic.

Soft tissues represent --

- (1) Correlation of tissues;
- (2) Mobility - functional activity;
- (3) Structural integrity of tissues;
- (4) Sensory field for termini of nervous system.

Heat centers are located in brain and upper part of spine.

The great heat center is in the cervical region.

(1) Vasomotor treatment is to cerebro - and cervical ganglia.

(2) Temperature treatment - Vibrate deep in sub-occipital region, between spinous and transverse processes.

The Distinctively Osteopathic Side of Diagnosis.

The field of osteopathic diagnosis takes in the chemical, physical and physiological. In the first we have the examination of blood, urine, sputum, investigation of germ and their products. In the second we have a reference to the architecture of the body. This covers both the structural and functional activities of the body:

- (a) Bony framework;
- (b) Soft tissues;
- (c) Mobility of each separate part of the body;

The purpose of mobility is to preserve the integrity of the body. It depends upon - elasticity of tissues, articular mobility. This is reached in three ways - through articulations, muscular attachments and through sympathetic treatment. As long as mobility exists the stimulation of mobility takes place by arousing tissue irritability. The latter depends upon the self-regulating power of the organism. Each tissue of the body contributes its share of the heat energy and temperature. Body temperature is very essential because without the body there is a thermic mechanism which has its function of temperature production and regulation. This thermic apparatus consists of heat and cold centers and fibres. The vaso-motor system helps this thermic system especially in the distribution of heat and its conversion into energy. The thermic apparatus depends largely on the muscular system. The secretory glands, especially the liver, being very active in temperature function. In febrile state the temperature function becomes disorganized and the body is subject to increase or decrease of temperature. In treating attention should be paid to the apparatus instead of the disease.

In physical examination the main point is to determine the adjustment of the different parts of the body. If all the structures and organs of the body are normally related to one another there is no lesion. If they are abnormally related there is a lesion. In attempting to find this out place patient on face with pillow under the chest. Do not place patient's heels or toes together. With patient in this position examine the spine superficially. Test for mobility. Begin at the cervical region, laying each finger on the spinous processes and bring each finger slowly down. Look for (1) Contractions of the superficial muscles; (2) Abnormal variations in the spinous processes, and (3) Hot and cold spots. After this a deep examination should be made in the same way. In this case look for contractions of deeper structures.

The ribs should be examined after this. First make a posterior and then a lateral examination. This is done by placing the flat of the hand over the ribs and then giving deep pressure up and down taking care not to let the fingers slip on the skin. When this has been done the flat of two or three fingers should be placed to an acute angle to the body's surface, looking out if the rib is turned, next apply some kind of pressure between the ribs and vertebrae to see if the spaces are normal in size, then see if there is any possible tissue tension, both muscular and ligamentous and tenderness. Another point to find is the relative condition of the muscles. This is found by palpating pressure.

The next point is the examination of the floating ribs. This can be done from the back, using the two middle fingers while putting strong pressure where the floating rib is attached to the spine. In doing this if the rib is abnormal the patient will feel pain. While pressing with fingers of one hand, take the other hand and apply pressure over the other hand of the rib. This will give pressure over the two ends, just like compressing a spring between its two ends. Locate abnormalities.

The next point for examination is the scapula. Look for normal and abnormal relations of the scapula. This is done from the back, using the two middle fingers while putting strong pressure as given above, then take the finger and begin at the lower border of the scapula and go up and around the scapula, then go around the outer border of it while pushing the fingers in between the scapula and the ribs.

The hands of the patient should be distended over the sides of the table so as to give relaxation and tension that may exist.

For further instructions of examination of different parts of the body see Osteopathic Technique, by Dr. J. Martin Littlejohn. (L. S. H.)

Theory of Treatment.

Osteopathic treatment is based on Mechanical principles. Mechanical treatment has its equivalent (physiological). The first effect is soothing and palliating some condition of body. The second effect is curative. In acute cases the work is always palliative until the condition is stopped or overcome. In treatment of acute fevers treatment is to be kept up before the crisis to retain the vigor of the patient. In chronic cases it is necessary to correct all structural lesions, then stimulate the blood and nerve supply. The three special points to be attended to are, (1) circulation; (2) respiration, and (3) the nutrition. Circulatory treatment, acceleration of the heart, is brought about by treatment applied to third and fourth dorsal vertebrae. The fourth and fifth dorsals represent the point of communication between the upper and lower parts of the body. The heart can also be accelerated from the middle cervical region. The heart can be inhibited at the pneumogastric nerve at its location at the superior cervical ganglion of the sympathetic, or by stimulating the inferior cervical ganglion. The respiratory treatment consists of raising the ribs, and by stimulating the vasomotors to the lungs from the third to the seventh dorsal vertebrae.

The Nutritive treatment consists in stimulating the stomach from the fourth to the fifth, and the sixth and seventh dorsals, representing the ends of the stomach, and the right pneumogastric for the body of the stomach. Also stimulate the liver from the sixth to tenth dorsals on the right side. The venuousity of the blood acts as an irritant. The common type of diarrhoea is due to excessive venous blood. In this case inhibit impulses passing brainward.

C L A S S I F I C A T I O N O F D I S E A S E S

1. Infectious diseases, including fevers.
 2. Diseases of the respiratory system.
 3. Diseases of the blood, heart and circulation.
 4. Diseases of the alimentary system.
 5. Diseases of the liver, spleen and pancreas.
 6. Diseases of the urinary system.
 7. Diseases of the blood as a tissue.
 8. Diseases of the nervous system.
 9. Diseases of the skin.
 10. Diseases of the rectum and anus.
 11. Diseases of the eye, ear, nose and throat.
 12. Diseases of the bones and articulations.
 13. Diseases of the muscular system.
 14. Diseases of the parasytic type.
 15. Venereal diseases.
 16. Obstetrics and Gynecology.
 17. Mental Diseases. Psychiatry.
 18. Physical diagnosis and treatment.
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F E V E R.

- (1) Rise in temperature; physiological.
- (2) Change in functioning, reaction; hyperphysiology.
- (3) Change in structure, pathology.

In examination of cervical region begin at atlas, making a superficial examination downward first, then a deep examination from below upward. In atlas and axis compare with the inferior angle of spine. If atlas is under the spine and too close to its anterior.

Palpate sterno-mastoid and trapezius muscles.

Locate thyroid gland by its isthmus.

Examine clavicle.

So get at left side of second, third and fourth ribs put arms around patient and pull scapulae out till you find the left side. Examine in an oblique line from second to sixth ribs for pericardial sound, sound will be greatest at sixth rib. If it is accompanied by a whistling sound it indicates the presence of pericardial fluid.

Examine organs in abdominal cavity - place hands down in pelvis as far as possible and pull organs up and watch movement of organs at same time, especially the ascending and descending colon, transverse colon and pancreas.

We begin by pointing out that a differentiation must be made between temperature and fever conditions. Undoubtedly as Graves pointed out "in the whole range of human maladies there is no disease of such surpassing interest and importance as fever". In the midst of the highest as well as the lowest civilization, in the urban and rural districts, in the mountain plateau and swamp regions fever and febrile conditions are everywhere found. There are very few diseases subject to so much confused opinion and thinking. The old physicians said - *essentia vero februm est praeter naturam caliditas* - because they were led to regard a symptom *al ne*, the warmth of the skin above the normal temperature consistent with health, as synonymous with the febrile condition or pathological condition involved in fever. Etiology must be emphasized, especially in this case, above symptomatology. Even the celebrated Virchow defines fever as "that state of the body in which there is an increase of temperature above the normal". While we acknowledge the undoubted authority of Virchow as a pathologist of the first rank, we refuse to accept this definition because there is an apparent confusion of effect with cause and of physiology and pathology.

There may be a temperature variation above the normal without fever. Extended exposures to extremes of cold or heat, continued residence in tropical regions, excessive dining, or drinking, especially of stimulants, or excessive or prolonged exercise may modify temperature without necessarily producing any febrile condition. Undoubtedly these temperature conditions may produce, develop into or become febrile conditions and temperature may manifest the existence of a febrile condition, provided febrile conditions do exist, but there is no necessary correlation. Hence the fact that the thermometer indicates a rise in temperature is not an unfailing sign of fever.

Dr. Scullier, in the Lyon Medical, of recent date reports a

case in which there was a rise in temperature to above 111 F during three successive days without any fever or increased pulse. It was the case of a young woman under thirty years of age. Without any previous hysterical history she suddenly fell into a state of narcoleptic sleep. The sleep was characterized by its depth, the pulse being normal, the limbs relaxed and the pupils contracted. There was no abnormal cutaneous temperature but the vaginal temperature registered 109 F. The patient was then given a bath at 82 F for ten minutes with the result that the temperature fell below 104 F. Soon after the temperature again rose above 111, the cutaneous surfaces of the body feeling hotter than at first, the pulse being 84. The patient was given another bath for fifteen minutes at the same temperature as before, the temperature falling to slightly above 100 F. The next day the temperature rose to 111 and continued until the patient awoke after a sleep of 36 hours. On awakening she entirely forgot the troubles that preceded the onset of the fit. There was no feverishness, no abnormal urinary conditions and only a slight increase of pulse. On the fourth day the patient was given a third bath at the same temperature and the temperature fell to 106. On the sixth day the temperature disappeared and became slightly subnormal. Soullier regards this as a pure case of hyperthermia without any other febrile symptoms. Other interesting cases of pure hyperthermia have been presented by Cuzin in connection with the onset of an attack of bloodspitting and in meningitis, peritonitis, chills, etc. 2

If the temperature is a febrile one it is diagnostic of a febrile condition. Why this febrile temperature? It is undoubtedly associated with the lack of nerve control which under physiological conditions protects the tissues from excessive oxidation processes. When febrile conditions exist this nervous control is lacking or loses its equilibrium, giving an increase of temperature which destroys or interferes with nervous regulation. What destroys, arrests or interferes with this nervous control? Possibly it is due to bacteria or their products that are found in the tissues or pass into the blood and thence to the nerve centers affecting those centers by irritation; or the tissues may be in a diseased condition the reflex irritation from this tissue condition affecting the centers; or traumatic conditions or lesions may cut off the nerve force or the fluid circulation, throwing the tissues into a mal-nutritional condition, resulting in the same reflex irritation of the nerve centers. It is found, for example, that septic discharges from wounds, abscesses, etc., absorbed into the nervous substance may produce temperature increase and that the direct injury of the nerve center may produce a febrile temperature without any external cause. In both of these cases the resultant temperature interferes with the healthy balance of life and may later throw the body organism into a febrile condition.

In normal body conditions the temperature is preserved about 98.6 F, the constant stability depending on the thermotoxic mechanism which regulates the generation and loss of heat. In connection with heat production the muscles and glands play the most important part. In the heat loss various physical and physiological processes play a necessary part, the heat being used up in the body functions and activities and the unused increment thrown off

from the organism by evaporation, conduction, convection, etc. The regulation of these processes, and especially the balance of production and loss, is under the control of the nervous system, including the thermic centers, the thermic fibers and possibly other nerves. In Pathological conditions this thermotoxic mechanism is interfered with in a number of ways, for example heat-loss may be arrested or modified resulting in heat accumulation; heat generation may be accelerated and the heat-loss may remain normal or be lessened, resulting in heat accumulations; increased heat-generation and heat-loss may be found side by side, resulting in no material change of temperature, although there is a febrile waste; the heat-loss may be increased without any material change in heat generation, resulting in a sub-normal temperature.

There are quite a number of physiological variations of temperature representing normal reactions, (1) such as the maximum and minimum diurnal changes, the latter representing the ebb of life from two to four in the morning and the former the period of activity during the day. These and the other conditions already mentioned require to be eliminated by exclusion from the pathological changes. Normal variations that cannot be accounted for on any such physiological basis are to be regarded as pathological variations. Different grades of (2) sub-normal pathological temperature have been laid down, such as collapse, subnormal, normal, sub-febrile, febrile and hyper-pyretic. In regard to the danger point, the danger depends, not only upon the increase of temperature, but upon the stage of pathological condition or disease and the length of time during which it lasts. We are not concerned here with the different types of fever as these depend upon the differential diagnosis.

An increase of temperature, it will be evident from what has been said, does not constitute fever. Heat generation in the body organism does not depend entirely upon an increase in the tissue changes. The increase of heat may arise from carbohydrate oxidation. From a physiological standpoint increase of temperature may be found without any increase in the excretions representing an increased tissue metabolism. Hence increased temperature alone does not indicate a febrile condition, the real indication of a febrile condition being the modification of the heat-controlling mechanism.

Among the phenomena that are at the basis of a febrile condition we must place first the breaking up of disintegrity of the tissues. Even if the fever is not severe or long continued there is a great tissue waste, including the blood changes, resulting in interference with tissue activity and also diminution of the fluids indicated by thirst, scanty urine, etc. The increase in the pulse rate is another symptom of the febrile condition and is caused by increase of temperature and other changes. In some febrile conditions, such as meningitic fever, the pulse rate is not increased. The accelerated pulse rate cannot be accounted for entirely by the increase in arterial tension and the increased rate of the blood flow. In the initial febrile condition there is usually the hard and full pulse with great arterial tension. Later relaxation usually occurs, the pulse becoming soft with a small pressure. At this stage the pulse beat is rapid, the quick heart beat throwing

out the blood into the arteries without emptying the cavity at each beat, thus diminishing the blood supply while increasing the heart and pulse rate. This enfeebled heart activity is to be accounted for by the increased temperature resulting in tissue wasting. The same or similar degenerative changes may be found in the liver and spleen and kidneys, resulting in an enfeebled rhythm of these organs. Accompanying the increased heart beat is an increased respiratory activity, because of the close correlation of the heart and lungs in connection with the great rhythmic regulating centers in the brain. The pyrexia condition of the blood may act upon the respiratory center directly or the toxic elements in the blood may have the same irritating effect.

Reactions in

- (1) Inflammation - nephritis;
- (2) Congestion - as the hardened liver;
- (3) Toxic - related to brain and excreting organs.

Attention requires to be given to the cerebral phenomena. Nervous excitement and delirious conditions often manifest the existence of irritating conditions. This does not depend entirely upon the increase of the temperature, because in some febrile conditions, a temperature of 103 is associated with the mental disturbance or comatose conditions, while in other fevers a temperature of 105 or 106 does not produce these conditions. Where these are present it is marked by stupor, more or less of prostration and mental sluggishness as in typhoid fever. It is partly due to the effect of the increased temperature upon the great nerve centers in the brain, but also in part to the depressant effect on these nerve centers of toxic elements retained in the system and thrown into the brain circulation. In some fevers, like scarlet fever, the opposite of this condition is found, the nerve centers being excessively stimulated, resulting in a strong heart and pulse beat, muscular rhythmic contractions and violent forms of delirium. In the majority of cases the temperature is very high and the skin flushed. As soon as the cerebral centers become exhausted the patient is liable to relapse into a comatose condition, or the coma may be preceded by the cerebral spasms. This is unquestionably due to some toxic element in addition to the increased temperature, these combining to interfere with the heat regulation and the functions that are specially associated with the thermotoxic mechanism.

It will be evident that the fever is not simply an increased temperature, but a systemic condition marked by increase of temperature, increased of cardiac and arterial pulse activity, increase of the katabolic side of tissue metabolism and deranged secretion; all of these signs or symptoms being dependent on the derangement of the heat regulating mechanism and other functional centers of the body processes produced by inflammatory, traumatic or septic conditions, or the products or some of these conditions. Septic or toxic matters found in the blood, whatever may be the cause of the existence of these or the occasion of the entrance of these into the blood, represent the main causes of febrile temperature or conditions. In the retardation of the blood flow, the blood is thrown into a condition of stasis and in this stasis condition,

the dynamic blood principle is lost, with the result, the blood is devitalized and becomes toxic. This static condition may be the result of injury, of a mechanical lesion, or an interference with the vaso-motor influence that regulate the blood flow. In any of these cases the static condition may be either partial or complete. If the condition is slight the vitality may be sufficient to overbear it and hence no febrile condition may develop. So soon however as the interference is sufficient to alter the function to such an extent as to produce static, or reflexly to alter the cardiac, respiratory, secretory and metabolic functions, derangement takes place in connection with the functional mechanism, toxic elements are thrown out into the blood and by the circulation they are carried to the brain centers. The blood pressure is altered and the distribution becomes irregular, the superficial or smaller vessels receiving a larger supply than normal on account of their dilatation. The dilatation of these superficial vessels implies inhibitory influence exerted upon the contractile function, so that the elastic tendency of the fibers in these superficial vessels is overborne by the tendency to dilate, resulting in superficial hyperemia. This gives us local congestion and loss of vaso-tonicity and these reflexly affect the entire circulation, the nervous system and the functions that are dependent on these. The extent of these disturbances will be determined in relation to the differential diagnosis of the different types of fever.

Is an increase of temperature physiological or pathological? We think it is physiological. Life is the struggle for existence. When the body is excited by disease, traumatism, etc., the regular heat regulating mechanism becomes deranged. Why? In the attempt to throw off toxic matters. During normal health this thermotoxic mechanism keeps the body temperature within normal limits, because the human body is a self-regulating mechanism. As soon however as toxic elements begin to disturb the body equilibrium the body tries to keep itself up to the highest standard possible. Hence there is an increase in metabolism and this from the physiological side. As an evidence of this we have the fact that the body may under certain circumstances become accommodated to this increased metabolic activity and correspondingly increased temperature, so as to enable the body to combat disease within the limits of the body vitality.

The temperature may become pathological, an excessive temperature resulting in thermal rigor, the causes of death being the coagulation of the muscle substance, the excessive increase of the metabolism to the point of destruction, the effects being noticeable in the quickened heart beat, the dyspnoeic respiration, the rapid changes in the nervous tissue of the brain, resulting in coma, loss of consciousness and loss of control of the body functions generally. Short of the point of muscular rigidity produced in thermal rigor any of the pathological changes produced upon the blood, the heart, etc., may become pathological, as causes of death.

Is fever physiological or pathological? It is pathological, because it represents the sum of a number of conditions including increased temperature, increased tissue disintegration, quickened heart, arterial and secretory action; and these when all combined together, represent the sum of forces that is acting against the

integrity of life and the vital processes of the body. In the light of the discovery of thermogenic and thermolytic centers, fever represents a pathological condition, representing the action of a number of causes, both primary and secondary; including the primary cause as a lesion, trauma, obstruction, etc., and the secondary causes in the presence and action of bacteria or their products, the poisonous substance stimulating the centers to increased activity. The result is increased temperature, quickened heart beat, respiration, metabolism, etc. Experiments have proved that the brain and spinal cord remain intact, bacterial products will artificially produce fever, whereas if the brain is cut off by division, such artificial production does not take place. In this artificially produced fever there is a marked increase in the respiratory interchange in connection with oxygen and carbonic acid gas, even when efforts are made to keep the temperature in check. This seems to demonstrate that in febrile conditions one of the chief phenomena is increased metabolic activity.

This seems to indicate that the increased temperature is not a primary factor in the febrile pathological condition, but rather a system of the increased metabolism. As such it represents the attempt of the heat regulating mechanism to protect itself, the increase of heat arising rather as a curative means of destroying the bacteria or their products. The most favorable temperature for the development of bacteria is that a little above the body temperature 99.5 F. In the cases of the diphtheritic and typhoid fever bacilli their growth is retarded above 100.4 F. In the typhoid germ at this temperature, the fermentation of saccharine substance is impossible. The erysipelas germ may be destroyed by the influence of heat above 103 F. In the case of pneumococci a temperature of 105.8 F. is found to produce the encasement of these germs. In this case the increase of temperature represents a physiological condition, or the attempt of nature to immunize against germ action.

According to Klempner another purpose is served by the increased temperature. The products of the bacteria or of bacterial action upon the tissues have an immunizing influence and this is materially increased at a temperature of 105 F. In a series of experiments the serum taken from animals immunized by artificial means was injected into animals at a temperature of 105 F, with the result that it was lowered within 24 hours to 99.5 F. The pneumonia crisis according to this will represent the point at which the toxins produced by the pneumococci are found in the blood circulation in sufficient quantities to produce in the tissues processes of reaction that will produce sufficient quantities of auto-toxin material to counteract the activity of the toxin substances. The pneumo-toxin or bacterial product is the cause of the disease and gives the increased temperature, the auto-toxin in the form of a compound protoid produced in the tissue cells produces the counteraction against the disease and the reaction in favor of the destruction of the pneumococci. It seems to us that this very strongly indicates the possibility of establishing immunity in connection with the body tissues by reactive changes produced in the tissue cells, whether the leucocytes or the actual tissue cells. In this struggle for existence between the bacilli and the tissue

cells, temperature seems to exert an important influence in the production of reactive changes by which the tissue cells generate proteids that can destroy the bacterial poisons. In these pathological conditions there seems to be present in the serum of the blood certain substances that when brought into contact with the bacteria render them lethargic and in conjunction with the bacterial products neutralize the poisonous substances produced by the bacilli.

If osteopathic treatment can stimulate these activities through the nervous system and the blood, while the increased temperature is performing its part of this healing process of nature, we have certainly a powerful therapeutic means of dealing with the febrile conditions. In connection with this febrile condition the true osteopathic therapy will represent the attempt to restore the normal regulating function of the thermotoxic mechanism through the brain and spinal centers and in connection with the blood supply and circulation. If what we have stated is physiologically correct, then the osteopathic treatment in the cervical region for the purpose of reducing temperature would be the proper treatment, if we are dealing simply with increased temperature, if on the other hand we are dealing with a case of fever, this kind of treatment is contra-indicated, unless as an expedient to aid in regulating vaso-motion or to keep the temperature below danger-point. The heat centers are located in the cervical region and in the medulla and the basal portions of the brain. To attempt to affect these directly would be to deal with a symptomatic condition, while leaving the cause untouched, the particular cause depending on the type of fever.

From a therapeutic standpoint the treatment must be to remove the cause or causes of the condition, and to alleviate and reduce within controllable limits the febrile condition by regulating temperature, vaso-motion, circulation, etc., The practice of medicine and osteopathy is liable to degenerate into simply dealing with the latter. In the old practice of medicine blood-letting was practiced to lower the temperature. Later purgative, diaphoretic and diuretic measures were resorted to with the object of removing the increased waste and assisting the free action of the tissues, especially the cutaneous and superficial tissues of the body in connection with perspiration. The application of cold water was made to the body, especially by putting the patient several times into a cold bath to lower the temperature by removing heat from the body. Some have used alcohol with the view of promoting the radiation of heat from the body; others have stimulated the sweat activity so as to increase the volume of perspiration and thus carry off heat of evaporation.

In regard to the effect of fever depressants in the form of drugs we find variations. Quinine was used in large doses to check the febrile temperature, the quinine affecting directly the heat producing tissues. Aconite was used to check the febrile temperature by its depressant effect on the circulation, thus antagonizing the fever. Aconite would not be of any service, but would rather be contra-indicated in cases like pneumonia, where a crisis is looked for, because its action would be antagonistic to the main purpose

of the method of treatment by drugs, namely to keep up the constitution and sustain the physical strength till the crisis approaches. The therapeutic action of aconite is supposed to be direct upon the cardiac muscle, lessening the blood pressure; upon the muscles of respiration, lessening respiratory action; decreasing the temperature by increasing the heat radiation in connection with the larger blood supply in the relaxed capillaries and also evaporation in the dilatation of capillaries around the sweat glands promoting perspiration.

From an osteopathic standpoint in treating fever we are dealing with life, involving the struggle for existence, and the vital processes. In the increase of temperature we have the rapid consumption of tissue substance. This disturbs the equilibrium of functions - and almost anything may start the disturbance in the form of a disorder, disease, poison, stagnation of blood, etc. This disorder is communicated by the nervous system to the brain centers, all of the vital centers being in close approximation and vital connections with one another. As soon as the equilibrium of these centers is overturned by toxins in the blood, the centers become irritated, the cardiac, pulse, respiratory, etc., phenomena follow. How shall we rectify this condition? Go after the primary cause which will be determined when we differentiate our type of fever. Limit, try to check the production of the toxic elements that are poisoning the blood and causing the abnormal action of the vital centers. Restore the normal nutritive conditions to this local part by rectifying the osseous, muscular, nervous and blood conditions contributing to the proper nutrition of the affected part. Keep up the constant circulation of pure blood, arterial and venous, because venous blood is pure and normal, the diphtheritic bacillus, for example, will not thrive in the venous blood. The particular application of these general points to the types of fever can be readily made, as soon as a physical diagnosis is made of the cause of the fever.

Our conclusion is that a febrile temperature is physiological; behind this febrile temperature we find a chain of conditions, the irritation of the nerve centers, the toxic elements, the congested blood conditions, the bacteria, the trauma or the lesion; In attempting to treat this febrile disturbance that is always more or less widespread over the organism, we must remove the lesion, heal the trauma, kill the bacteria, counteract their products and thus eliminate the element of discord introduced into the nervous economy of peace coordination and harmony.

Heat is produced by chemical and physical changes which are absolutely essential to maintenance of normal body temperature. If the temperature (a) goes down below the standard maintained by the balance of heat production and loss in the body, the chemical and physical changes cease to such an extent that the adjustment is disturbed and life hangs in the balance; (b) if the temperature goes above normal the chemical and physical changes take place so quickly that the balance of adjustment is also disturbed and to keep pace with the rapid heat productive tissues are destroyed more rapidly than they can be repaired. Here life is also endangered. In this case the death process goes faster than the life

process. Hence fever represents a rise in temperature accompanied by (a) disturbance in the functional economy and (b) an increased tissue consumption resulting in morbid changes.

The rise in temperature is probably always produced by the reaction of the sympathetic nervous system upon the heat centers in the medulla. That the sympathetic system is involved is evident from the accompanying symptoms of chills, vomiting and accelerated heart action. They are reactions from the medulla, the heat center, the vomiting center and the vasomotor center - all of these being disturbed because of their close interrelations with one another.

The febrile diseases represent primarily toxin productions. These toxins through the circulation in the medulla produces a disturbance of the equilibrium of the vital centers, causing (1) a fall in temperature in the reaction of the heat centers to the toxins; (2) A chill caused by the attempt of the heat center to recover its balance but resulting in failure, the failure manifesting itself in this explosive condition; (3) There follows a rise in temperature because the heat center cannot recover its balance and the sympathetic system uncontrolled causes acceleration of the combustion processes; (4) with this the vomiting and vasomotor centers are disturbed by the toxic conditions, the vasomotor excitement resulting in a vaso-constriction all over the body, the blood being driven from the capillaries into the larger vessels, leaving the capillaries constricted and devoid of blood, with resultant peripheral chilliness or coldness; (5) the reaction from the peripheral constriction is found in the increased heart action, greater work of the heart being necessary to drive the blood through the constricted vessels, the capillaries being already full of blood under capillary tension. The result is that the heart beats faster in the attempt to do more work. The breaking down of tissues results in increased combustion, the presence of production or destruction in the blood; (6) The congestion of the blood with these accumulated products causing delirium and degeneration of the organs.

How to break this chain is the object of the therapeutics of fever. The main point is to break the lock between the constricted periphery, the overworked heart and the unbalanced control of the medulla centers.

To accomplish this (1) the surgeon used his lance, removing sufficient blood from the venous field to cause the circulation through the capillaries and thus establishing peripheral counter-contraction (dilation); (2) The physician used hisaconite to cause depression of the vasomotor centers-the medulla, with the expectation that when the constriction lock was removed peripheral dilation would follow, thus drawing the blood away from the over worked heart and irritated brain; (3) the hydrotherapist uses heat to produce dilation of the peripheral blood system, radiating the heat excess away from the body and physical means so as to dissipate the heat from the body and thus establishing a balanced equilibrium between the heart, vaso-motion and heat production; (4) osteopathically adjustment is established by correcting the irritating cause or causes of the toxin production and distribution, thus establishing the normal physical and chemical changes, the normal blood circulation and the balance between the central and peripheral hearts (the true heart and the capillaries). How it

can be done in each particular case will be determined by the lesion found as the cause of the primary disturbance.

Fever is to be distinguished from febrile temperature. In the latter case there is simply an abnormal rise in temperature, due to some irritating cause. This irritating cause may be associated with some disorder of the stomach or some lesion involving the nervous system.

FEVER in contrast with TEMPERATURE, represents four different conditions existing simultaneously and acting together to produce the febrile state:--

1. A rise in temperature. The normal temperature is 98.4 F with a variation of one degree above and one degree below, i.e., 97.4 and 99.4 would still be normal.

2. The reaction of some function or functions as the result of the rise in temperature, or irritation, from a lesion causing a rise in temperature, for example, disorders of the stomach, resulting from a rise in temperature, or disorders of the kidneys, or lungs, by reaction, these last two representing a reaction of function from the excretory side. This is one reason why pneumonia is so fatal when established as a pneumonic process, because the excretions are being thrown out in this way and the lungs become laden with these excretions. The osteopathic treatment of pneumonia is the treatment of vaso-motor system to compel the lungs to eliminate these excretions through the circulation. If this cannot be done the patient will die from toxic absorption.

3. Malnutrition. Here the nutritive condition of the body becomes disorganized, digestion, metabolism and assimilation being disassociated from their normal cooperation with resultant disorders and sometimes cessation of functioning in all the processes of nutrition.

4. Resultant derangement in forming a change in structure of some tissue or tissues of the body by or through a degenerative process. This is what is called the morbid anatomy change. In defining or describing a fever remember that all four of these changes are presupposed before there is the real existence of fever.

Febrile temperature (No. 1) is a physiological process. The body trying to destroy, by the production or accumulation of an increased amount of heat, some waste elements in the tissues.

Fever is also a physiological process (Nos. 1 and 2) up to the point where we find changes in structure (Nos. 1, 2 and 3). This represents a pathological process.

The result of this view of fever is that a common method of treatment to reduce the temperature is a false method, because if there is a physiological process going on it ought never to be stopped, because the increase of temperature has a specific purpose, viz., the destruction of waste matter. The osteopathic treatment of fever is scientific from the physiological standpoint. It consists of:--

A. Negatively, not to reduce the temperature unless there is danger of collapse on the part of the patient. This was discussed under the general topic of fever.

B. Positively, remove or get rid of the condition that is causing or producing the temperature. This means one of two things or both:

1. The removal of rubbish or waste from the system;
2. The removal of irritating causes in the form of lesions. All lesions will be found in the vasomotor field in all probability.

C. When the temperature has increased to the point of danger to the organic life (indicated by signs of collapse in the patient) reduce the temperature:--

1. By radiating the heat away from the body. Use the cold sponge bath or the cold sheet pack, or some other expedient of similar nature.

2. By some form of evaporation. Give the patient a warm bath to cause perspiration and then evaporate it by absorption (or give a vapor bath), or

3. By the stimulation of the sweat secretion by osteopathic treatment.

(4) Do not use any cardiac depressant, either in the form of medicine or treatment, because to depress the heart it is to prevent the heart from distributing the heat by the blood and to confine the heat within the body.

Febrifuge is the name given to a drug reducing the temperature. A febrifuge may attempt to control the temperature in one of two ways:--

1. By causing the production of heat to cease or to be checked;

2. By slowing down the action of the heart. Either or both of these methods is harmful to use, because:--

(a) In stopping the heat production waste elements are still kept in the system;

(b) In slowing the heart action the depression reacts upon the whole systemic circulation and the heart is so weakened that the patient really dies from heart failure, not from a febrile disease. The reason for this is, the patient has no sufficient vitality to overcome the heart depression. Vital resistance is low.

The second stage in the fever is the reaction on some function, causing the diminution of the function or its entire loss: e.g., in typhoid fever the reaction is on the cells of Peyer's patches in the intestine, resulting in the loss of function of the intestine. This is shown, for example, in persistent constipation or in persistent diarrhea.

In brain fever the reaction is on the cells of the brain, these losing their function until there is no control, either of the brain or from the brain.

In malarial fever the reaction is upon the blood, as a tissue:--

(1) In the plasma or watery part of the blood, this portion of the blood attempting to protect the vital portion of the blood.

(2) In the red blood corpuscles. Here the corpuscles disintegrate because they have no vitality in themselves.

(3) Sometimes it affects the white blood corpuscles, these also disintegrating in what is called the pernicious type. The great febrifuge in malarial fever is quinine in large doses. The reason for this is that quinine has an affinity for the red blood corpuscles. Malarial fever is caused by a small parasite that gets into the blood and clings so closely to the red blood corpuscles

that the corpuscle tends to or goes to pieces. The quinine also is supposed to go to the red blood corpuscles; the quinine, however, acts on the red corpuscle the same as the parasite does, i.e., it disintegrates the blood. That is the reason why its excessive use makes people pale and colorless, producing a condition analogous to rheumatism the broken down red corpuscles remaining in the blood as a floating substance. The ear suffers because of its delicacy, the ringing in the ears being caused by the modification in the blood pressure.

In dealing with a fever, especially the reaction resulting from increased temperature, we must deal with it by --

(1) Excessive heat radiation or the evaporation of heat away from the body. The only case where this is contra-indicated is where there is heart trouble (organic). In the ordinary case use the cold sheet pack, may be used with best advantage. Where the heart is involved use the cold sponge or, in cases where the heart is very weak, use the tepid sponge bath.

(2) Try to regulate the function that is interfered with, by reaction, i.e., of the heat. This is done mainly by treatment applied to the spine at the point corresponding with the function affected; e.g., in typhoid fever, locally there is a vaso-motor condition located in the lower dorsal region; appendicitis is a localized vasomotor and secretory condition, located in the 1st, 2nd and 3rd lumbar region. In these cases correct the lesions which are causing the irritation. There are two portions of the spine chiefly involved in appendicitis-1,2,3 lumbar and the lower dorsal. If the lesions are corrected in these areas appendicitis will remain an inflammatory process and will not pass into the pus stage. This means that we are dealing with an acute condition and the lesions are likely to be muscular and the object of treatment is to check or overcome the congestive process. In some cases of appendicitis the inflammation is toxic, the cause of the toxemia being exudative material thrown out from the intestine. In this case we require to deal with the condition from the standpoint of the toxemia, viz.:-

(a) To remove the toxic cause;

(b) To prevent the intoxication from affecting the peritoneum and thereby setting up peritonitis.

This accounts for the intensely painful appendiceal conditions, the pain being:--

1. General over the abdomen, or at least over the right side of the abdomen;

2. If absorption of the toxic matter carries away the toxic substance, then the appendix, which becomes loaded with the toxic matter, is subject to suppuration. Here the pain becomes localized. This develops into

3. Typical abscess formation.

According to this appendicitis originates, in most cases:--

(a) In an abnormal fermentation process that takes place within the intestine itself. This is the reason why it can be controlled so easily by osteopathic treatment, because we can destroy the fermentation process and this makes the development of appen-

dicitis an impossibility. In this case the lesions are found in the lumbar region and the conditions are controlled through the vasomotor system in the region of the first two lumbar vertebrae.

(a) The other type of appendicitis is that in which we find the constipative tendency. The result of this is the absorption by the intestinal wall of the fluid contents of the ascending colon. These contents represent the toxic substances and when absorbed, they drop down by the forces of gravity into the right or ilio-caecal region of the abdomen around the appendix. Here we find:--

1. A toxic peritonitis, followed by
2. A toxic appendicitis.

The treatment in this case is to be directed to the lower dorsal and upper lumbar regions, 9th dorsal to the 3rd lumbar, to control of --

1. The intestinal peristalsis and secretion, and
2. The blood supply both to the intestine and to the peritoneum. The treatment will depend on the state of the muscles. If there is a strong contraction, it will be inhibitory, if not, stimulatory (articulating), so as to reach the vaso-constrictions; i.e., we treat appendicitis as we would treat a congestion, elsewhere, then follows the treatment to check the pain.

Appendicitis is a condition in which we do not have to pay any attention to temperature. The higher the temperature the better for the patient, so long as the temperature is distributed over the body. The dangerous temperature is an intensely aggravated inflammation (peritonitis).

Aside from osteopathic treatment, the local application of hot water, or of flaxseed poultice, to cause relaxation, is helpful in controlling the inflammatory process.

I N F E C T I O U S D I S E A S E S

All infectious diseases are more or less related to fevers. Fevers represents increase of temperature, including reaction on some function and includes morbid anatomy. Temperature as distinguished from fever represents derangement of the heat apparatus. This takes place through --

1. Nervous system;
2. Blood;
3. Metabolism;
4. Muscles and glands.

Fever is always associated with abnormal temperature, but the latter is not always associated with fever. In infectious diseases fever is really, or usually caused by toxic elements. You usually find local and general vasomotor disturbance, disturbances with the thermic apparatus, of the excretory system. You have multiplication of germs which tend to increase the toxic irritating substances, products of the germs. These germs interferes with nutrition also. Resulting from these we find morbid anatomy, i.e., a morbid condition or wasting away of the tissues.

Treatment of Fevers --

1. By local inhibition of the first five posterior spinal nerves in the cervical region. Here we get direct effect on the general vasomotor system through the superior sympathetic cervical ganglion, the result being to equalize the blood circulation.

Temperature treatment --

2. Indirectly this will affect the nerves that control the sweat and lymph. Direct inhibitory treatment in the upper cervical region produces direct effect on the thermal apparatus. The great center of heat production is the upper cervical region.

Vasomotor treatment --

3. Increase, respiration will be increased by increasing the vascular area from first to seventh dorsal.

4. The vascular area in the abdominal region may be increased through the splanchnics and treatment to fourth and fifth dorsal.

5. Promote physical methods of heat loss?

Toxic centers are usually the result of a fever.

All local centers become general through the medulla.

Brain accelerates and inhibits heat production.

Spinal cord has to do with regeneration and local production of heat, the vasomotors of the blood including the sweat system and the splanchnic area.

6. In fevers, first look for lesions at the axillary points of the vasomotor and temperature, and then pay attention to the heart action, equilibrium between the accelerators and inhibitory; thirdly, attend to the lungs by getting free exchange of gases in them, attention being paid to the ribs, especially the fifth and sixth; fourthly, stimulate the kidneys and lower part of the intestines, reaching the kidneys at the twelfth dorsal and the intestine in the sacral region; fifthly, free the pelvic circulation by articulating the lumbar vertebrae. Two special points in regard to infectious diseases that you may not always find special lesions and in febrile cases do not reduce the temperature unless it reaches the danger point. Attempt to remove heat from the body by means of radiation, conduction, or evaporation if it is advisable.

Infectious diseases are communicable the same as are water, milk germs, etc.

Contagious diseases are communicable by contact with --
toxins:

Toxins of the germs,
toxalbumins - infected proteid,
ptomaines,
leucomaines.

TYPHOID FEVER

Typhoid fever is sometimes called nervous fever. It is an acute infectious disease with a predisposing cause found in connection with malnutrition of the intestines. The exciting cause is said to be toxic substances produced by a germ in the body or disintegration of food. The distinctive lesions are found in Peyer's patches, the mesenteric glands and also the spleen. It generally comes on very slowly. One of the first symptoms is diarrhoea with abdominal tenderness and tympanic sounds in the ear. Other symptoms are epistaxis, febrile temperature, headache, etc. Typhoid fever usually comes on between the age of puberty and thirty or 35 years of age, in women between twenty and thirty. The most prevalent season for the development of this disease is in the Fall. If the patient is attacked at any other season the disease is more likely to prove fatal. This disease usually follows a long dry summer. The germs exist in the forms of spores. From an osteopathic standpoint the cause of the fever is due to an impairment of the nerve supply to the intestines, producing obstruction to the blood supply which consequently causes imperfect nutrition.

The lesions found in Typhoid fever are in the lower dorsal and lumbar regions. The germ associated with Typhoid fever is the bacillus Eberth. The bacillus uses water and milk as its medium growing best in the latter when it is fresh. Exposure to extreme low temperature does not destroy the germ for it is sometimes found in ice. Vegetables and fruit also serve as mediums. There are unsanitary conditions which favor it, e.g., dirty clothes, unsanitary surroundings, etc.,

In the field of Pathology or Morbid Anatomy in Typhoid fever gives us several stages:-- (1) Hyperemia (2) Hypertrophy; (3) dilatation; (4) deposits; (5) infiltration: here we have enlargement of the cells and deposits of matter in the intestines. The capillaries become whitish, indicating anemia and the lymphatic elements become enlarged, followed by necrosis or disintegration.

The result of Typhoid fever is permanent weakness of the intestine, because Peyer's patches have been obliterated and replaced by cicatricial tissue. Among organs that are affected are the mesenteric glands, which have become hyperemic, the spleen, which has become enlarged, the liver, which has undergone a change of fatty degeneration, and the gall bladder becomes enlarged and its function destroyed thus it gives a watery secretion instead of bile. The kidneys sometimes degenerate on account of the infiltration of matter which is toxic in its nature. In some cases the lungs and heart become involved. In connection with the heart such conditions as pericarditis or myocarditis may arise. In some cases the nervous system is involved. In this case the pneumogastric nerve has been degenerated.

Among other symptoms we have dizzy, fainting headache, associated with languor, multiple chills in lower part of body and epistaxis. The temperature arises about one to one and one-half. This goes on daily and may reach 104 or 105 or even a higher temperature. The first stages cover a period of seven days in

which the pathological formative change takes place. From the seventh to the fourteenth day there is a rise in temperature, though generally there is a dropping of temperature in the morning. During the first seven days the pulse is accelerated, and there is a condition of constipation followed by diarrhoea in the second week.

The rise in temperature is accompanied by quickened pulse rate, reaching a point of perhaps 130 to 150. Sometimes there is a rapid pulse without rise in temperature.

In connection with the skin there are red colored spots over the abdomen, not always found, appearing from the seventh to the tenth day. There is always a presence of these spots over the chest. When pressure is applied to them they disappear. The skin is always dry and harsh, except when chills come on and then there is perspiration. Sometimes the skin is oedematous. The best thing for the skin in this case is sponging with water about 85 in temperature. There may be a formation of gas in the abdomen which causes a pushing up with the diaphragm which interferes with the heart and lungs.

There may be also a condition of nausea and vomiting in the early stages which should be checked. Perforation usually takes place about the third or fourth week. Is indicated by acute pains; tenderness in ilium, abdominal distention, and is then followed by peritonitis. In case of perforation a surgical operation is necessary.

Treatment - Osteopathically the first thing to be considered is prevention or abortion of the disease. Preventive measures should be made in periods of an epidemic of typhoid fever. Sanitation should be looked after. Make free use of disinfectants and see that there is good ventilation. A patient may be isolated by hanging a sheet saturated in the carbolic disinfectant solution over doors leading to other parts of the house.

Typhoid fever can be aborted in its early stages, while patient is suffering from languor, epistaxis, headache, etc., by controlling the vasomotors which stir up the blood throughout the body. Have patient drink plenty of water to aid in excretions.

During the stage of infiltration --

- (1) The intestinal splanchnics are to be attended to from ninth to twelfth dorsals;
- (2) If there is excessive pain in diarrhoea give strong inhibitory treatment to eleventh and twelfth dorsals on left side;
- (3) Give light treatment to abdomen to tone up abdominal muscles;
- (4) Look for regular typhoid lesions which will be found in lumbar region and correct them as soon as possible. Have patient abstain from food. These points apply to abortive measures.

If typhoid fever cannot be aborted give the palliative treatment --

- (1) Regulate the diet of the patient, giving liquid diet only. Boiled milk is good if it agrees with the patient. Broth or thin soup, beef or vegetable soup is best. If the soup is strained the solid particles will be eliminated thus insuring a more ready digestion of the food? The white of an egg is strained and made

into a kind of paste is also good. In most instances boiled milk and whites of eggs will relieve diarrhoea? Oatmeal and barley water strained and jellied is also good.

(2) Use water. In the early stages the patient should be given a light sponge bath, the temperature of the water being about 70. If patient is weak use a sheet pack at 65. Give very little water to drink. Boil the water and aerate it, for distilled water is bad for the blood.

(3) Osteopathic treatment is applied to the vasomotors and the muscles along the spine should be relaxed in connection with the vasomotor treatment. Examine the spine each day. Treatment should be given every three or four hours. If the temperature gets to the danger point (106) inhibit at the sub-occiput. Look after the heart and liver every day.

There are some special points to be noted in typhoid fever:-

(a) Abdominal pains which become serious sometimes and one is required to give light superficial treatment, treating toward the solar plexus during first and second stages. If this treatment does not control the pain give strong inhibitory treatment in the lower dorsal and upper lumbar regions.

(b) Accumulation of gas producing pressure on the heart and lungs which causes rigidity of the diaphragm, can be relieved by raising the ribs and having the patient take long deep breaths and holding the air for a short pause between each breath before releasing it. Have patient breathe slowly.

(c) Constipation and diarrhoea. Deal with first through the liver by local treatment and spinal treatment over liver area. Treat the diarrhoea from eleventh to twelfth dorsals on left side.

(d) Internal intestinal hemorrhage. This can be controlled best from eleventh to twelfth dorsals on both sides by inhibitory pressure. Keep the patient on the back with the lower limbs elevated.

(e) Insomnia. To control this condition relax the muscles in the cervical region and then alternate stimulation and inhibition. Apply light inhibition over the carotids on both sides at the same time.

(f) Delirium. Deal with this affection through the blood supply to the brain at 5, 6 and 7 cervicals. Stimulate the vasomotors to the brain at third cervical ganglia.

(g) Control convalescence. Watch patient very closely for a week or ten days. Gradually bring the patient back to solid food through semisolids. Sometimes there is a condition of constipation and diarrhoea lasting for some time. This is due to the weakness of intestines and treatment should be applied to the splanchnic area of the intestines. The diarrhoea is also due to toxins that have not been eliminated. Have patient drink freely of water and see to elimination by treatment through the lumbar region.

The left hip joint is subject to dislocation after typhoid fever. Appendicitis may cause dislocation of right hip. Parturition may also dislocate the right hip.

Articulatory treatment at fourth and fifth dorsals will eliminate gas from the stomach.

The characteristic etiology.

In most acute cases we do not look for osseous lesions, at least well marked. Contracture of the spinal muscles is found. Sometimes there are lesions involving the ribs as in cases involving weak heart or lungs. These lesions produce irritation to the spinal nerves and the sympathetic supply to the intestines. In some cases a posterior condition of the lumbar spine, in others an abnormally enlarged and posterior condition of the lower cervical and upper dorsal. These involve the lymphatics, cut off the supply of lymph necessary to flush the intestines and keep them free from accumulations. The loss of the spinal nerve supply in the regional distribution to the small intestines results in the loss of prophic function, with the result that the small intestines deposit, growth of the germs. These lesions will thus interfere with the motor, vasomotor and trophic nerves to the intestines, the local disturbances throwing the local part into malnutrition, the vasomotor disturbance resulting in congestion, inflammation and infiltration, and the motor disturbance giving rise to mucous irritation, interfering with the already obstructed circulation, resulting in necrosis and giving rise at the different stages of the condition to diarrhoea or constipation. Complications that arise depend upon the already changed blood and nerve conditions and probably depend to some extent upon the predisposing nutritive conditions of certain organs of the body. The obstructed blood, the paralyzed condition of the lymphatic supply, the toxic or septic condition of the blood and local tissues as soon as the typhoid becomes established, and the effort on the part of some organs to throw off these, resulting in over-activity, give rise to most if not all of the complications.

Symptoms. These are dependent on the profound state of disturbance induced in the organism by the typhoid condition. The Germans call it nervous fever, correctly so, because of the profound nervous therapeutic disturbance and altered nervous phenomena due to obstruction, irritation, toxæmia or septicæmia. Many of the clinical symptoms are due to the change from the continued to the intermittent and remittent types of fever. Thirst, abdominal pain, the development of degenerative changes in the heart, lungs, etc., are secondary to the nervous disorders.

All these active tissues and organs become non-trophic even the skin becomes soft and waxy, because of its loss of nerve control. The oncoming prodrome, according to Dr. Pepper, is indicated by languor, dullness of hearing and intense occipital headache. These are the first phenomena of nervous disorders. Chilliness, which may or may not be present, represents a nervous explosion and this takes place especially from the respiratory standpoint. Sensory impulses of irritation of some kind reach the centers until the co-ordination between sensory and motor phenomena, with the cell as center, become disturbed, and as the center tries to establish its equilibrium an explosion of nerve energy takes place that distributes itself all over the organism

with the result that we have shaking, trembling, chattering of teeth etc. This explains why the chill is found in typhoid when it is complicated with pneumonia. This is of importance clinically, because if we have a threatened typhoid condition with the symptoms, to abort the attack we must attack it from the respiratory and vasomotor standpoint.

Another symptom that is associated with the headache is muscular weakness and nervous debility. This is due to the intense disturbance of the nervous system which makes it unable to control the muscular system. In this case to abort we must attack it from the muscle standpoint in connection with the nervous and even the mental side. Deal with these almost exclusively from the standpoint of the upper and anterior brain regions through their connections in the cervico-dorsal spine. Bronchitis with cough comes as a symptomatic condition, closely associated with splenic enlargement, the bronchitis being irritated by the enlargement of the spleen and the toxins produced by the typhoid condition. This must be aborted from the double standpoint.

(a) Of the bronchi, lesions at the lower cervical and upper dorsal affecting the lymphatic system and irritating the bronchi;

(b) Of the spleen, some disturbance of the eighth and ninth ribs of the corresponding vertebrae and the adjacent muscles, interfering with splenic functional activity.

All these conditions, therefore, depend upon the impairment of the nerve supply and vasculature of the intestines, resulting in the production of imperfect nutritive conditions, lesions being found, either primary or secondary, in the lower dorsal and lumbar regions. The resultant changes are excited by the bacillus, these changes taking place in the lymphatic elements, particularly localized in the glands called Peyer's patches and the solitary glands. All the resultant changes of the morbid anatomy are consequences which develop in the natural order of degenerative processes. The spleen becomes large and soft in some cases, the liver enlarged and filled with fatty material, resulting in the loss of characteristic bile secretion; similarly in the heart, lungs and kidneys we may find a degenerative change, and this may extend to the skeletal muscles, where the formation of granular substance and its accumulation are characteristic. Even the vagi nerves may degenerate.

It is not wonderful that we find --

(a) Febrile temperature and an established fever. Here we find the three characteristics of such, a fever, increase of temperature, reactional changes of function, and resultant changes in tissue structures.

(b) Heart phenomena and changes in blood pressure, sometimes if not always, resulting in the disturbance of the co-ordinate rhythm of the heart beat and pressure of blood, and of heart and lung rhythm.

(c) Aggravated constipation or diarrhoea with intestinal hemorrhages, gas accumulation, perforation, resultant heart and lung interference through the diaphragm, peritonitis, twitching muscles, with resultant muscular neurosis or neuritis, persistent headache and delirium. These phenomena are all dependent on the changes already noticed.

Treatment.

The nervous system is profoundly disturbed, the primary disturbance probably being vasomotor and trophic. Successful therapeutics, therefore, must attempt to gain control of the vasomotor and trophic apparatus. To do this we must remember, that while there are two great nervous systems as channels through which we can appeal to the organism, we must ultimately appeal to the cerebrospinal system, and especially to the brain; because the neuron cells of the brain represent order and the power of control over the organism, and no disturbance can be efficaciously removed that does not gain control through this regular ruler of nature, the central nervous system. This is true because here reside, the center of the sensorium, the center of motivity and motive power and the storehouse for the trophic forces, and without the concurrent action of these no disturbed organic or functional condition can be restored.

A lesion involves a change in the adjustment but the adjusting apparatus lies behind. Can we appeal then to the neuron cell? In such an appeal to the neuron cell lies the therapeutics value of osteopathic treatment. The older schools of medicine tried to do this by administering certain substances through the alimentary canal, in rare cases through the blood by direct injections; the osteopathic system goes directly to the nervous system and the framework of mechanical anatomy which it permeates and in which it is encased.

The therapeutics of osteopathy, therefore depends upon these primary principles --

(a) That we can by manipulation reach the nervous system, no part of it being removed from our reach;

(b) That our mechanical manipulation can be converted into a physiological equivalent in connection with this nervous system, so long as vitality exists;

(c) That vitality depends upon certain changes taking place from within and determined from without, this determination being controlled by the great centers of the neuron cells;

(d) That this vitalized organism has the property of irritability in virtue of which, because of the connection of every part of the organism with these neuron cell centers by means of the communicating nerve fibers, every part of the organism has the power to a stimulus. If the body loses that power it is dead. We can affect this irritability mechanically, either by acceleration or retarding the stream of impulses passing from center to periphery and from periphery to center;

(e) That this vitalized organism possesses in all its parts, namely the component cells, the power of reproduction. Dr. G.I. Martin points out that the living cell has within itself the power of performing the act of living. One of these powers of vitality is the power of reproduction. This applies to each part of the body, so that within certain limits when degeneration takes place regeneration is possible. The vitality of the body depends upon the normal adjustment of all its parts, the elemental cells, and the cell groups, or tissues and organs. This adjustment depends --

(1) Upon order established from the central nervous system;

(2) The basic raw materials of the proximate principles of food

supplied to the body and assimilated under the direction of the nutritive function of the nervous system, especially the vasomotor;

(3) The correct relation of the different parts of the structure to one another and to the entire organism, established by the regular sensory and motor apparatus and through the sympathetic system;

(4) The correlation of the different functions, especially in connection with tissue and organ rhythm. Each organ and tissue has its own rhythm, consisting of a cycle of changes, and all of these rhythms are coordinated. The rhythm of each organ and tissue depends upon the trophicity exerted from the central nervous system and tonicity exerted through the vasomotor system. All the rhythms are coordinated by the control of adjustment that takes place through the neuron cells. While every other cell in the body, as Dr. Martin says, has the power of life, all these cells are subject to and yield implicit obedience to the neuron cells. Can we influence this whole chain, the chain of health, by influencing the neuron cell? If so, then, our methods are therapeutic. Practically there is no part of the body removed from the control of the neuron cell, because every part of the body is supplied with nerve fibers which have a connection, either direct or indirect, with these neuron cells.

In osteopathic work there are three things that can be done, to affect these neuron cells, that is, there are three and only three great remedial measures in the osteopathic pharmacopeian-

(a) Correction of some misplacement. The correction sets up a stream of impulses from the point of correction, by means of or utilizing the articulatory sensations, arising from muscle, bone, membrane, ligament, etc. There is no part of the body that does not give rise to these articulatory sensations if the body is normal. When correction of the abnormal takes place a stream of impulses is around. What becomes of these? They pass to the sensorium and from thence are distributed by the neuron cells to the organism, the weaker part receiving an extra share, because the path to the weaker organ is the pathway of least resistance.

(b) Stimulation or moving pressure exerted over some soft tissue, like nerve, muscle, to set up an increase in the current of nerve impulses at and from a particular point. The impulse will pass along the nerve in both directions, primarily until it reaches the central cell, from which distribution will take place in the appropriate way.

(c) Inhibition by means of steady pressure over some soft tissue, the object being to check an over current of impulses at a particular point in order that these impulses through the central cells may be properly distributed to the rest of the body in order to secure adjustment and equilibrium.

In these ways we appeal to the central cells via the intermediate substance or part corrected, inhibited or stimulated, and thus gain control in therapeutic fashion of the nervous system and the organism.

This is the ideal of therapeutics. Can we apply it to typhoid fever? The principal is to give control of the nervous system, especially the vasomotor system that supplies the intestines, and lymphatics, because the primary changes are in the lymphatics.

The treatment may be --

A. Preventative. Prevention is better than cure. During an epidemic measures may be taken to prevent the spread and to promote resisting power. Water and milk should be boiled. Patients should be isolated and rigid disinfectant measures taken. The typhoid state is aggravated by the condition of the patient.

Hence ventilation should be perfect to remove all expiratory and excretory elements from the air of the room. The excretions should be disinfected by the use of carbolic acid and destroyed. In giving the patient diet the vessels used should be boiled before being brought back to the room for use. In those susceptible spinal treatment should be given to correct misplacements and prevent contractures in the dorso-lumbar region and in the cervico-dorsal region as well as around the ribs, so as to keep the spine well relaxed and prevent any interferences with the lymphatic and vaso-motor systems.

B. Abortion. This may take place during the first week. One point particularly is the headache and epistaxis. This is best controlled through the vasomotor system and if controlled at this stage the typhoid can be aborted.

(1) During the stage of infiltration the intestinal splanchnics should be attended to from ninth to twelfth dorsal. The condition may be dealt with either by stimulation or inhibition, so that the spinal muscles may be relaxed, with a cervical treatment to soothe the nervous system. This treatment may be given with the patient on the back or side to avoid unnecessary change of position and excitement.

(2) If there is excessive diarrhoea deal with it by inhibition. The best point at which to apply this inhibition is at 11 and 12 dorsal on the left side. This can be applied by closing the hand and using the knuckles of the fist as close to the spine as possible, crowding in down deep. It is best applied with patient on the face if diarrhoea is excessive. If this does not control, continue inhibition and at the same time raise the left limb. If this is not enough use the right hand to inhibit in spine and pull up the thorax with other hand.

(3) During the same period give careful treatment lightly over abdomen to increase the abdominal tonicity and the normal intestinal activity. This must be done very carefully.

(4) Look out for the typhoid lesions found in the dorsal, lumbar and sometimes cervical regions, at first likely to be muscular, later osseous. Frequently the correction of these lesions will control the diarrhoea.

C. Palliative and curative. If it cannot be aborted or if it has gone beyond the stage where abortion is possible, then the following measures may be adopted:--

(1) Regulation of diet. Diet ought to be solely liquid, very great care being exercised. Undietetic procedure has killed many a typhoid patient. The principal diet should be boiled milk, if this agrees with the patient, given with some freedom, but care during the first week. If milk does not agree than milk whey, this souplstrained white of egg made up into a paste. Perhaps better than any other is oat meal water. Get the groats or shelled seed.

Then steep in water, over night. Strain this and boil down until semi-fluid jelly consistency. Barley or wheat jelly may be made in the same way. The best thing to quench the thirst with is distilled or boiled water and if this becomes nauseating, oat or barley water or lime water. Give the patient plenty of water. This alone will carry on the metabolic functions of the tissues and keep up the vitality of the patient in an average case.

(2) Use of water externalit. It is very good to give the patient a bath at 70 F. but it should not be given unless the temperature is over 103. If it gets over 103 it would be advisable to use the cold pack. The sheet should be used at 65, then put on the patient and removed when it warms. The sponge bath should be used where the temperature is over 103, using the sponge water at 65 or 70. In this way heat is radiated and evaporated away from the body.

(3) Osteopathic palliative and curative treatment. As a palliative measure the most important thing to do is to give a vasomotor treatment --

- (a) To relax the rigid or contracted muscles of the neck;
- (b) Articulation of the vasomotor field of the spine - second dorsal to second lumbar;
- (c) Inhibitory treatment up to fourth cervicle.

If the typhoid is established do not treat the abdomen during the illness. Examine the entire length of the spine each day to find out if any abdominal contractions or displacements exist.

(a) Give to the spine every day in addition to corrective treatment a light stimulating treatment along the spine, Springing the articulations gently in the dorso-lumbar region to relax the ligaments and free the nerve supply.

(b) After the relaxing treatment give same treatment around the iliac fossae being especially careful to treat the left side; then follow by a slight lifting of the intestines upward;

(c) If the patient develops a high temperature and it continues, give a vasomotor treatment in the upper cervical every 3 or 4 hours in order to equalize the circulation. This treatment appeals to the superior cervical ganglion and through it the medulla vaso-motor center. If the temperature continues to keep up attempt to reduce by strong inhibitory treatment in the occipital region. If the temperature becomes excessive let the head rest on one hand in the sub-occipital. To aid this stimulate gently the cardiac and pulmonary rhythm at the fourth and fifth dorsal, especially on the left side. This with the spinal treatment will help to equalize the circulation. At the fourth and fifth dorsal we get the centers for heart and lung rhythm and the center for the superficial circulation. Inhibitory pressure at this point will steady and slow the heart action and regulate the pressure of the superficial circulation. In cases of over rapid heart beating the raising of the fourth and fifth ribs by placing the one hand at the head of the ribs and lifting the arm above the head will steady and reduce its action.

(d) Each day look after the liver and kidneys at the eighth, ninth and twelfth dorsal on both sides so as to take in the spleen.

(e) Special points to be attended to in the course of the typhoid case---

(1) Abdominal pain sometimes becomes very serious. Light treatment inhibitory in its nature in the abdominal region towards the solar plexus. If the pain persists a treatment of the lower dorsal and upper lumbar, inhibitory, followed by light treatment over the abdomen towards the solar plexus and the thorax will give relief.

(2) Gas accumulation. This gives a rigid diaphragm, with pressure on the heart and lungs. Deal with this by raising the lower ribs. Begin on the right side, placing one hand, over the ribs posterior, and pulling up while the arm of the patient is raised on the same side. Do the same on the left side. Then standing at the head of the patient place one hand over the cartilage of 8, 9 and 10 ribs, gently pull up, placing the hands during expiration and pulling gently during inspiration.

(3) Constipation and diarrhoea. The constipation may be reached through the liver and the diarrhoea through inhibitory treatment and 11 and 12 dorsal on the left side and the correction of any lesions in the lumbar region.

(4) Internal intestinal hemorrhage. May be controlled by strong inhibitory treatment on spine at last two dorsals on both sides. The patient should be kept quiet on the back, with the lower extremities slightly elevated. We controlled a case of intestinal hemorrhage following intense sea sickness, the hemorrhage taking place from every body orifice and having persisted for more than twenty-four hours, by a strong inhibitory treatment from the tenth dorsal down through the lumbar region.

(5) Insomnia is best controlled by a relaxing treatment in the cervical region, alternately slight stimulation and inhibition, followed by an inhibitory treatment at the occipital, pushing the fingers tightly at the back of the ears down to the spine. Apply light inhibition over the carotids by using the finger, releasing the inhibition and then repeating for a few seconds.

(6) Delirium. The best way to deal with this is through the circulation to the brain, stimulating vaso-motor activity to the brain through the three cervical sympathetic activity.

D. Convalescence. During this stage the patient should be carefully watched. Give the patient only light liquid food for ten days. Then begin to give a semi-solid diet as the intestinal walls are weak, the glands deficient and rupture is liable to follow the use of solid food.

Diarrhoea or constipation is liable to appear. Constipation is due to diminished peristalsis and defective liver action. Treat through the splanchnic area, especially on the right side. Diarrhoea is due to irritation of toxic products still retained in the systemic circulation. Deal with this by inhibitory treatment at the lower dorsal and lumbar and stimulate the abdominal circulation to carry away the toxic products.

These are treatments that have stood the test of application. The regular physician may say a typhoid patient cannot stand the treatment. The treatments are all light and need not disturb the patient's equilibrium. The lady we treated for intestinal Hemorrhage, after medicinal treatments for twenty-four hours, was too weak to lift her arms, but in half an hour after the inhibitory treatment was able to sit up in the reclining position.

We have not laid down this outline of treatment as an empiric specific. The points specified have all been tested in specific cases. Every individual case must be studied by itself according to the principles laid down. The remedies must be applied after we have diagnosed carefully the condition of the particular patient. We should always remember that we are treating the patient, that we are appealing to the central nervous system and that at the most we are helping nature to resist disease, to overbear the disturbances and to establish order in the system. With these points in view the intelligent Osteopath simply uses his genius and skill in treating his patient and does not follow any code of treatments. What we have done has been to suggest the remedial measures that have been already tested.

TYPHUS FEVER

Typhus fever is also known as camp fever, jail fever, ship fever, spotted fever, etc.

Etiology. This may be traced to overcrowding and poverty where there is little attention paid to ventilation, hygiene, etc. The eating of unhealthy food, decomposing or unvarying diet.

Typhus fever is an acute infectious and contagious disease, characterized by-----

- (a) Sudden onset -- even hysteria;
- (b) Faculated rash;
- (c) Marked nervous symptoms, and
- (d) High temperature.

It comes on suddenly and terminates suddenly. It terminates usually by crisis about the end of the second week; if it extends longer it is protracted crisis. To differentiate typhus fever or spotted fever from meningial spotted fever. In the latter the spots come only along the spine an on either side.

Pathologically a toxic condition of the system resulting from decomposition of food. Spots are white with red on reddish base.

Pathology. The pathology of typhus fever shown--in the beginning ---

- (1) Hyperemia and hyperplasia of the lymph follicles,
- (2) There is seldom ulceration.
- (3) The blood is dark colored, indicating malnutritional condition of the tissues and also anemic state of the blood, also diminution of the fibrin element of the blood. Frequently there is a tendency toward hypostatic congestion due to impurity of blood, but no thrombus.

(4) In this hypostatic congestion case the blood acts as an irritant and affects the nerves. There is --

(a) Bronchial catarrh sometimes - fatality due to this - which is due to the hypostatic condition of the blood in the bronchial tubes;

(b) Among other organs affected are the liver, spleen and kidneys. They become enlarged and are soft and flabby which is due to hypostasis and infiltration of the blood inside the bronchial tubes, as stated above, and the blood inside the substance of the organs.

Symptomatology. The period of incubation or development in typhus fever is from twelve to fourteen days, due to the sudden onset of the disease.

(1) It generally begins with a single chill, or a series of chills, or only a single rigor or a series of rigors, caused by coagulation of muscle serum.

(2) Following this there is a single rise in temperature ranging from 104 to 105 F.

(3) With intense headache and muscular pains, principally in the back. Here the patient is very restless and cannot stand or lie down with ease.

(4) Reaction of heart and circulation. There is sudden fullness of pulse, a quick, bounding pulse, followed by a weak pulse.

(5) After this comes an aggravated vomiting and nausea. With this there is a hyperemia of the surface of the body, eyes are flushed, etc.

(6) Following this there is pallor and the eyes glossy, immobile and seem to sink in the orbit. At this stage a great thirst comes on accompanied with delirium and suppression of urine.

In Typhus Fever the eruption comes on about the third day over the abdomen, chest, and sometimes the whole body, except the face. There are two types of eruptions --

(1) A rose colored, just the same as in typhoid fever and due to the same cause; disappears on pressure;

(2) Maculated spots with red base.

In the second week there is a condition of thirst and retention of urine, due to paralysis of the nerves to the bladder. There is tendency to muscular paralysis. Labored breathing, accompanied by a feeble heart's action, this is an important symptom representing loss of harmony between respiration and the heart's action. During the second week the temperature ranges from 105 to 109.

Treatment. In the abortive stage the general management of the disease is very much the same as in typhoid fever.

(1) In the treatment of typhus fever give the patient as much fresh air as possible. Remove all causes and excitability.

(2) Keep the respiratory system open. Treatment from second to seventh dorsals - vaso-motor.

(3) When the temperature is high use the sponge bath and give febrile treatment at the sub-occiput and upper cervical to fourth by inhibitory pressure.

(4) Treat the patient for asthenia, stimulating the heart from two centers -- (a) indirectly from the first in the upper cervical region, and (b) directly from the splanchnic area.

(5) Stimulate the sympathetic system from two ends - cervical and coccygeal ganglia and ribs, articulating.

(6) Headache and delirium. Strong inhibition in the cervical region, also give the carotid treatment, if necessary go to the interscapular region.

(7) Attend to the intestinal area. This calls for light kneading treatment along the path of the intestines, terminating at the solar plexus.

(8) Keep the muscles thoroughly relaxed in the cervical and sub-occipital regions by extension and rotation.

(9) Vibratory treatment to lungs, liver and kidneys.

(10) Give vasomotor treatment every five or six hours to increase respiration.

(11) The diet given is very similar to that in typhoid fever. Care being taken not to excite diarrhoea.

(12) Give inhibition as final treatment.

(13) Give direct treatment to solar plexus.

Hyperemia
Hyperplasia
Infiltration
Coagulation
Hypertrophy

Ulceration in typhus fever only comes when there is blood poisoning.

Hyperstatic congestion is the congestion inside the blood vessels.

Kidneys are affected first through the frequent catarrhal conditions and its functional elimination is increased.

Sympathetic system is the great accelerator of the vital processes.

Suppression of urine is secretory disturbance found in urinary tract.

Retention of urine is an excretory disturbance of the urinary tract.

Typhus patients have very low vitality and all treatments must therefore be given with great caution. There exists a lack of co-ordination of different vital processes.

Kidney conditions are not as serious here as in typhoid fever patients.

High temperature and low pulse is not dangerous as it accelerates the pulse, increases vitality and eliminates toxic materials.

The medulla is the center of vital processes, so treat from first to fifth cervical and assist this treatment by stimulating the splanchnic area.

Sympathetic treatment is the articulation of the head spine at the heads of the ribs.

SMALLPOX.

Smallpox or variola is an acute epidemic, infectious and a contagious disease, characterized by --

- (1) Severe lumbur pains;
- (2) Vomiting and an initial fever, lasting from three to four days, followed by a remission of fever and eruption, at first (a) papular, then (b) vesicular, and afterwards (c) pustular. Infection begins to take place. Collapse often comes. The development of the pustule being accompanied by a secondary fever, during the presence of which grave complications are prone to occur. In smallpox we have a distinct period of incubation extending over a period of 14 days.
- (4) In this stage we have scar. We must bear in mind that this disease is contagious in every one of its stages, but most marked in this stage.
- (5) In the last stage we have cicatrization.

Etiology -- The primary cause of this disease is a specific toxin. The toxin of the smallpox is the most virulent found in all diseases. The nature of the poison is unknown, yet it maintains its contagious vitality for a long period. There is no period from the initial fever to the final desquamation that the disease is not contagious, although the stage of suppuration is most violent. One attack as a rule inures the patient against another attack. Although the disease is highly contagious and the entrance of this particular poison into the system causes this disease, no one has been able to discover a germ and the virus or toxin still remains isolated. To contract the disease is not necessary to touch the individual already afflicted, nor even to approach a sick room. It may suffice to touch a garment which has once enveloped the smallpox patient, or which has hung in his vicinity. In large cities a contagion may be conveyed from one case of smallpox to another individual - most frequently occurs by passing afflicted individuals on the street, by riding in the same street car or train, even after the individual has left the car. The disease is most readily communicated during the period of scabbing and drying - Even after the surface of the skin is entirely healed - from third to sixth week - the patients should not for a time mingle with other individuals. The body of one who has died of smallpox is a fruitful source of contagion.

The susceptibility to smallpox, as to all other infectious diseases, varies in different individuals in different races, and under the influence of conditions which are yet unknown. Some persons are insusceptible to the disease as well as to vaccination, and yet others have been known to have the disease as many as three times. The Negro and the Indian races seem to be more susceptible to the disease than the Caucasian. Then again at intervals of a few years, the general susceptibility of the people seems to be increased so that cases of smallpox become far more numerous than usual.

A point of considerable interest is the fact that the child while in the mother's womb may experience the disease along with the mother and thereby acquire, before birth, the usual immunity conferred by one attack of the disease. In most cases of smallpox in pregnant women abortion or miscarriage occurs, yet a sufficient number of instances are on record in which healthy children have been born, exhibiting the characteristic pitting of smallpox, and possessing no susceptibility to vaccination. Again in other cases in which a pregnant woman has smallpox the foetus of the womb escapes entirely while the most singular fact is that the foetus may experience the disease, while the mother through whom the exposure was affected, escapes, either because of a previous attack or because of protected by vaccination (?). While there is no reason for believing that an attack of smallpox can be or ever has been aborted by artificial means, yet there is a prevalent belief that this process occurs during certain epidemics of smallpox, cases have been known in which individuals presented all the symptoms indicating the invasion of smallpox, and yet no eruption occurred, yet such individuals are therefore insusceptible to smallpox and vaccination. The mortality of this disease varies, like the susceptibility of it, with the age of the patient, and with certain unknown conditions of the atmosphere or soil which favor the occurrence of epidemics. The average among scattered cases - sporadic - is probably not greater than one in nine or ten. A fatal result occurs more frequently in the second week of the disease than at other times. Generally speaking the danger may be said to be indicated by the extent of eruption.

Pathology - of - Eruption.

- (1) Toxin - intoxication certain lymphatic functions and producing an abnormal excretion on the surface of the skin.
- (2) Formation of the papules.
- (3) Remission of the fever.
- (4) Pustulation - vesicular substance being dead. Collapse.
- (5) Cicatrization.

Symptoms -

- (1) Onset of smallpox very slow. The first symptom noticeable is a severe chill which sometimes occurs singly or may be in a series of chills, followed by a high temperature.
- (2) The next symptom is an intense headache, and following this-
 - (a) Severe pains all over the muscular system, then pains settle down in the small of the back;
 - (b) Articular pain coming from head, with head as center;
- (3) Temperature. The first day generally rises to 104, second day 105. At this stage the pulse is rapid and hard, which is due to the tension of the bloodvessels. On the third day the eruption begins, first appearing on the forehead. On the fourth day the eruptions change from red to white and there is a fall in temperature. After appearance of the eruption the temperature usually stays down, but if it rises again we may look for a fatal termination.

The suppurative fever comes on in eight or ten days. At this point there is a great dryness of the surface of the body and intense thirst. There are several types of smallpox --

(a) The first type is simple smallpox. In this type the eruptions are discreet and the papules are all separated.

(b) The second type is called the confluent type. This differs from the discreet form in the greater severity of the symptoms; and the marked prostration of the patient, the eruption appearing in the early onset of the disease and the pustules coalescing into large patches causing great distortion of the features. Choleraic type of diarrhoea usually found in discreet and confluent types of smallpox. Also have delirium caused by absorption of toxin.

(c) This is the hemorrhagic type. Dysenteric type of diarrhoea found here. This is the most severe type of smallpox and is characterized by the irregularity of the symptoms, death resulting before the characteristic eruption appears, by convulsions or coma. In these cases the surface of the body becomes hemorrhagic. There are two sub-types to the hemorrhagic type:

- (a) The Variola Hemorrhagica or Pustulosa, and
- (b) The Black Smallpox.

Varioloid, or modified smallpox, is the name used to indicate the disease either as it occurs in those who have been inoculated with the toxin in the form of vaccination, or as it occurs as the result of direct or intentional inoculation with the virus from a patient suffering with smallpox. The vesicles are few in number and widely scattered, while the fever is slight and the chills and pain not so severe? Many patients are astonished when they are told that they have smallpox, yet even though the individual suffers little it must be borne in mind that he is just as dangerous to others as the most virulent case of Smallpox. It is highly probable that much of the promiscuous dissemination of smallpox in the large cities is accomplished in a great measure by these cases of varioloid, since many individuals find it unnecessary to interrupt their usual avocations.

Treatment - (1) Isolation of the patient. It would be well to place the patient in a room that is free from draperies, rugs, carpets, curtains, etc.

(2) Disinfection of all vessels used in the room of the patient. (A solution of carbolic acid - 1 in 20 - makes a suitable disinfectant. Camphor is also a good disinfectant in contagious diseases.

(3) The first point in the osteopathic treatment of smallpox is to relieve the pain in the back by a thorough relaxation of the spinal muscles. Articulate from lumbar region to head. Pain in lower extremities treat by rotation.

(4) To treat headache give regular treatment in subocciput, steady pressure between frontal and occipital regions.

(5) Attend to the febrile temperature by giving a cold plunge bath (water 70) or a cold sponge bath. Always use acidulated water, carbolic acid to prevent crusting or itching, and carbolized

vaseline as an ointment - ten to twenty grains in one ounce of vaseline. Give a slightly acidulated drink to the patient, because in this disease the blood is in an alkaline condition.

(6) Dysentery and diarrhoea is caused by strong inhibition in sacral region, accompanied by strong inhibition in the sub-occiput. It cuts off the dilator function and causes constriction.

(7) Do not neglect the eyes, throat, and mouth, for these organs are suffering from the alkalinity of the blood which nourishes them. Give vasomotor treatment to the superior cervical ganglion of the sympathetic, and accessory to that treatment stimulate at the second and third dorsal vertebrae. Also stir up the acid function of the solar plexus by stimulating its anterior aspect. The posterior part of the solar plexus is the alkaline side.

(8) Deal with the diarrhoea the same as you would in a case of typhoid fever, but do not check the diarrhoea altogether or it may kill the patient.

(9) During the period of convalescence see that the patient gets constitutional treatment of a vasomotor type and also give an acid bath daily, with acidulated water to drink. Vinegar can be used instead of acid if it is well kept and pure.

(10) Lesions of smallpox. May usually be found -

(a) Upper cervical;

(b) Second, third and fourth dorsal;

(c) Lesions in the lumbar region and of the sacrum.

The usual osteopathic treatment should be applied for the headache, assisted with cold cloths or ice packs or bags to the head to reduce the fever and to draw the blood away from the head.

Fever:--

(1) Initial stage, three or four days.

(2) Incubation period fourteen to sixteen days.

Diet similar to that of typhoid fever and typhus fever. The object being to keep the vital energy. Give mostly carbohydrate food.

Albuminous substances are good in febrile conditions.

Constitutional treatment for --

Circulation
Respiration
Nutrition.

V A R I C E L L A - (Chickenpox.)

Here we have an acute sometimes called infectious constitutional disease affecting the whole organism through the blood as a tissue with (1) a slight fever and (2) mild eruptions in the form of vesicles on the skin. Sometimes this disease is an epidemic, at other times sporadic. It is very contagious, being found in children from two to nine years of age. Is seldom found in adults and is not to be confused with smallpox. The period of incubation is from ten to twelve days. Sometimes the first symptom is the eruption, while in other cases the first symptom is a slight fever, restlessness of the body and weakness. In other cases it comes on with a chill followed by fever and vomiting, which are accompanied by severe pains in the muscles of the back and lower extremities. We have general body weakness. The eruption generally appears in from 24 to 48 hours.

Pathology. (1) Hyporemic condition of the blood. The first appearance of the eruption is small reddish spots which are irregularly distributed over the trunk of the body, notably over the back.

(2) In a few hours these small red spots turn to bright scarlet colored vesicles, containing a clear fluid.

(3) They become darker as the fluid thickens, and on the second day when the fluid begins to dry crusts begin to form which fall off in scales. After the crusts have been fallen there is a scab left. One characteristic of this form of eruption is that it appears in crops. These crops of pox continue in succession for four or five days. The scar from the pox is not visible unless there has been scratching.

Among the complications of Varicellae find paralysis. Being a disease of children the form of paralysis can be easily associated with infantile paralysis. The prognosis is very favorable. In varicella patient should be put in bed.

The only point of special interest in Varicella is the possibility of confusion with smallpox. It will be well to bear two facts in mind: In smallpox the rash begins as hard papules which become vesicles only after a lapse of several days; in chickenpox the rash begins with vesicles from the outset. In smallpox the vesicles exhibit the characteristics of an umbilication, which is absent in varicella.

Treatment. (1) Isolate patient. Attend to disinfection, and give acid bath.

(2) Relax the muscles along the spine thoroughly and then rotate and stretch the lower limbs so as to stretch the sciatic nerve.

(3) Give circulatory treatment. Centers are located at 4 & 5D. This is the center of superficial circulation.

(4) The bowels require to be open, circulation free, and a light acidulated diet, accompanied with occasional sponge bath.

(5) Rhythmic treatment - V.M. constipation (1) Treat colon, caecal valve to rectum and back. (2) Rhythmic treatment to splanchnics.

(6) Lesions found are in the lower and upper dorsal area.

RELAPSING FEVER

(Famine Fever.)

Is found in its most characteristic form in starvation. The period of incubation is seven days. As it is a recurring fever there will be other periods of incubation, absence and re-occurrence being its chief characteristic. It is an acute infectious disease due to *Spirillum Obermeyer*. Its most characteristic symptom is the febrile condition and the relapse after a period of subsidence. If it runs its full course there are three or four remissions, and a corresponding number of relapses, i.e. the critical point is the development of the fever.

Etiology. The predisposing causes are unsanitary and unhygienic conditions, e. g., eating decomposing food, and lack of food at all - famine.

Pathology. (1) Exhaustion of the nutritive supplies and the lack of functions of the nutritive processes.

(2) Tendency to lodge in particular organ.

Its morbid anatomy has its most characteristic point -

(a) the spleen, which is enlarged and soft. Sometimes the (b) liver and (c) kidneys are affected in the same ways.

Symptomatology - The onset of the disease is very sudden

(1) Beginning with a chill; (2) Intense pain in the back and lower limbs, and (3) High temperature-103; (4) Pulse rapid, reaching from 100 to 150.

(a) Absorption symptoms are nausea and vomiting with convulsions in children and delirium in adults;

(b) Sometimes there is jaundice and profuse sweating, due to abnormal absorption;

(c) There is also a condition of herpes, which is due to the toxic condition of the system;

(5) The development of this fever takes place by (a) Profuse sweating; (b) crisis, i. e., critical development of the fever. If the fall in temperature is too great there is a collapse and death as a result, also sudden fall in pulse will bring about the same condition. Among the complications is -

(a) A rupture of the spleen, which is due to enlarging and softening of the organ;

(b) Post-febrile paralysis, may be visceral or of the muscular type.

Treatment There are three things which occur and which we must look out for - diarrhoea, profuse sweating and hemorrhage.

(1) Diarrhoea is to be dealt with the same as in typhoid fever, i. e., inhibition at the tenth, eleventh and twelfth dorsals on the left side.

(2) Profuse sweating is a disturbed condition of the sweat glands together with superficial circulation-disturbance.

Give treatment to sweat areas - lower cervical, upper dorsal - lower dorsal and upper lumbar regions to accomplish this. Along with the above treatment give treatment to the general lymphatic system over the anterior transverse processes of the last three cervical vertebrae. This is a stimulating treatment. Correct lesions

(3) Hemorrhage may be either intestinal, gastric, or uterine

(a) For the intestinal hemorrhage apply strong inhibition in the lower splanchnic area, viz. ten to twelfth dorsal vertebrae on both sides;

(b) In case of gastric hemorrhage apply strong inhibition over the stomach centers - fourth to fifth dorsal, for the cardiac orifice and sixth and seventh dorsals for the pyloric orifice; treatment to right pneumogastric nerve at any of its points of distribution or correlation for the body of the stomach; the best treatment for the above nerve would be at sterno-cleido-mastoid triangle.

(c) In case of uterine hemorrhage give strong inhibition at second to fourth lumbar vertebrae. This also applies to all cases of uterine hemorrhages.

(4) From an osteopathic standpoint the real cause is an obstruction of the venous blood system. This is controlled by-

(a) Stimulation and (2) Inhibition. It is applied in the vasomotor areas. - (a) Great vasomotor area, in the region of the superior cervical ganglion; (b) If the lower vasomotor area is disturbed involving the spleen, kidneys, liver, give the same kind of treatment, rhythmic, in the regional areas of the organs, as follows:

- Spleen - 8 to 10 dorsal on left side;
- Liver - 8 to 10 dorsal on right side;
- Kidney - 12 dorsal.

(5) In addition to this rhythmic treatment directed to the sympathetic system, in the upper cervical, sacral and coccygeal areas.

- I Give rhythmic treatment to vasomotors from second dorsal to second lumbar.
- II Give rhythmic treatment to superior cervical ganglion and sympathetic system on both sides - 3 D to 3 L
- III Give rhythmic treatment to organs involved - liver, kidneys and spleen.

In herpes or water blisters deal with as a lymphatic condition. Paralysis is also a complication. It is first febrile paralysis. Normally will pass away when the toxic matters disappear.

Dropsy is very frequently found as a complication of (a) Suspended nutrition, causing the lack of necessity of blood circulation. (b) In case of long involvement in the dropsical condition the lymphatic centers - lower cervical and upper dorsal - here may be enlargement. If no enlargement found, stimulate, if found, inhibit to remove the enlargement and then stimulate and correct any lesions.

In dropsy treat circulation of lymphatics at lower cervical along anterior transverse processes.

SCARLET FEVER

(Blood disease.)

This disease, sometimes called Scarlatina, is distinguished by a great diversity of symptoms as well as by varying degrees of severity. The mildest form is comparatively trivial in its form is one of the most destructive diseases with which we are acquainted. For convenience, the disease may be distinguished according to severity and to the amount of complication in the throat. These varieties are called Scarlatina Simplex, Scarlatina Anginosa and Scarlatina Maligna. It must be understood, however, that these are not distinct diseases, but merely convenient terms for the designation of the different manifestations of the same disease. Scarlet fever is a contagious and infectious disease from the first day of its occurrence, and if no disinfection be employed, its contagiousness probably does not cease as long as desquamation continues.

The disease is accompanied by a (a) high temperature and a rigid rapid pulse; (b) secondary to this we have cardiac symptoms which are due to intoxication; (c) accompanied with a scarlet eruption - sometimes the eruption is dark; (d) one complication of scarlet fever is nephritis which is produced by deposits in the kidney which have not been eliminated. This may be due to lack of water. There has not been found any specific germ or toxin. The germ that medical men have been supposed to find is the streptococcus pyogenes. They find it in the blood. The most prevalent season for the disease is late in the fall. The disease is not communicated by contagion by desquamation.

Pathology (1) Hyperemic condition of the mouth, throat and glands; (2) Eruptive or eliminative stage.

Horrid anatomy. It is practically unknown. The only changes are with the eruption which comes (a) on the first as a bright red colored eruption. Bright red colored spots may be seen through the skin. The mouth, tongue and throat should be examined with a magnifying glass. The eruption usually appears on the second day, first on the neck, then on the chest, then on the rest of the body. The red spots correspond with the hair follicles. On pressure the eruption or spots disappear. The eruption usually lasts from three to four days. If the eruption lasts longer than that time the patient gets cold and the spots begin to disappear, desquamation then takes place. In some cases the eruption does not appear at all. (b) Look out for these cases where the eruption does not appear. The febrile temperature lasts from seven to ten days.

Symptoms. The period of incubation may extend all the way from three to fourteen days. The onset is always sudden.

- (1) One of the first symptoms is vomiting;
- (2) Along with the vomiting there are convulsions and a high temperature with a rapid and hard pulse? The initial temperature is about 100 F. The initial pulse is about 120 and 140;

- (3) The skin becomes dry and the face flushed. The first symptom of scarlet fever is a sore throat;
- (4) Rapid respiration, followed by extreme constipation, scanty urine, very thickly filled with urates and albumin, headache, anemic - sleeplessness, delirium, convulsions, profuse perspiration and the "strawberry tongue."

In the malignant type the throat symptoms are intense, with symptoms of suffocation. There is great swelling around the neck, throat and the mouth. There is also a presence of a false membrane, like in diphtheria, extending down into the bronchi and up into the nostrils, enlargement of the glands in the neck, similar to the symptoms of brain fever while the patient is wild and delirious.

In the hemorrhagic type there is hemorrhage into the skin, haematuria, epistaxis. This type is generally found in the poorer class of children who are badly nourished and whose blood vessels are weak and easily ruptured.

The complications during convalescence are nephritis and dropsical conditions.

To differentiate scarlet fever from diphtheria: In diphtheria there is no rash, but there is a false membrane in the throat. A microscopical examination of the membrane will remove all doubt.

To differentiate scarlet fever from measles: (1) In the measles you have the sore throat and the eruptions do not appear so soon; (2) When the eruptions do appear they are in the form of papules instead of red spots.

Treatment. Clinically, scarlet fever represents, from an osteopathic standpoint, (a) A toxic condition primarily due to lack of the in the upper functions in muscles and thyroid; (b) Secondly associated with sore throat is a type of the tonsillitis but it is due to toxic elements in the blood; (c) In the lesion field it is associated with stiffness and a seemingly cartilaginous condition of the muscles of the neck and tightly contracted condition of the muscles in the dorsal region.

(1) To relax the condition if taken in the primary stages give rotatory and articulatory treatment of the neck. The muscles through the dorsal region that are involved should be relaxed.

(b) To quiet inhibit the pneumogastric just above the clavicle, the object being to reach the pneumogastric vasomotor function of the pneumogastric nerve.

(c) Reach the heart at about the fourth vertebra at the lower end of the superior cervical ganglion and inhibit which will also quiet; inhibiting the superficial cardiac nerves, sensory (Hoarsley says that the pneumogastric nerve sends a number of minute branches to the superior cervical ganglion from the heart which is the phylogeny for the inhibition at the lower end of the superior cervical ganglion. On the right side the pneumogastric descends anteriorly from just above the clavicle in relation to the first rib, while on the left side it descends posteriorly, thus, making it an osteopathic impossibility to reach it at the corresponding point on the other clavicle. It connects the anterior portion of the solar plexus.

(4) In the treatment of intense headache, accompanied with a high temperature, the treatment should be (a) Inhibition in the occipital region; (b) Treatment around the lower jaw to produce relaxation also relieves the headache by producing stimulation of the fifth and seventh cranial nerves, which modify the various sensations by utilizing the various ganglia which stimulate impulses outside of the brain through its motor points.

(5) Where there is a hard and rapid pulse, intense vaso-constriction causes hardness, rapidity is due to toxic conditions, it can be best controlled by inhibition sympathetically through the superior cervical ganglion of the sympathetic system. All fibres of the heart have sensory function, because, by cutting off the stimuli the heart's action may be weakened, in consequence of the weakening there is a slowing of its action. As an aid the heart can also be reached through the laryngeal branches of the pneumogastric, treat above clavicle.

(6) In looking for a condition of congestion bear in mind that the rash is a congestive condition of the true skin. (a) This may be relieved by rhythmic treatment at the fourth and fifth dorsal vertebrae; (b) If this does relieve the condition use the hot bath and articulate freely at fourth and fifth D.

(7) In the simple type watch very carefully the throat and tonsillar symptoms. The treatment would be a relaxation of the muscles of the neck and upper dorsal regions, also upper cervical. Lift the arm of the patient and treat the tissues underneath the clavicle by pushing the fingers underneath.

(8) In this malignant type the blood should be kept in thorough circulation, as there is a tendency to stagnation. This may be done by stimulating the vasomotor side of the blood from the second dorsal to second lumbar, which (b) is aided by treatment (rhythmic) at fourth and fifth dorsal.

(9) In condition of vomiting which comes as a premonitory symptom it may be checked -- (a) By strong inhibition to the right pneumogastric nerve; (b) Rhythmic treatment at the sixth and seventh dorsal, followed by the same treatment at the fourth and fifth. Do not reverse the order. By giving this rhythmic treatment at the sixth and seventh dorsal the pyloric orifice of the stomach open. The fourth and fifth dorsals control the cardiac orifice of the stomach, so when the pyloric orifice is opened the cardiac is closed and vice versa.

Now, the first thing to do is to open the pyloric orifice which is the counteraction of the cardiac orifice.

MEASLES

(Lymphatic disease - sometimes mild or severe.)

Measles is an acute infectious and contagious disease, characterized by - (a) Coryza as a premonitory condition, or (b) By a typical eruption of the papular type. Measles always begin in coryza (common cold), involving the nasal and pulmonary areas - hyperemic condition of the mucous membrane. Measles represent a most characteristic condition of eruption which comes on quickly and spreading generally over the body. Measles is usually an epidemic. It is considered a germ disease, but so far it has been unable to locate the germ peculiar to the disease. It comes on in the fall and is considered a disease of children but is largely found among adults. The contagion takes place in connection with the respiratory system and is usually associated with cold or disturbance of respiration. There is no morbid anatomy in measles. In fatal cases there is pleural and bronchial pneumonia.

(1) In the first stage in measles we have the coryza stage with all lesions connected with coryza; (2) Following this we have chills or chilliness - not typical, followed by chilliness, loss of energy and a consequent weakness; (3) Sometimes there is also a croupy cough. Later in measles involves the throat - hard metallic cough involving the bronchi; soft, involving the pleura and lungs; (4) There is a general weakness at this stage of the disease, sometimes mental as well as physical. The eruption comes on about the fourth day. The height of the fever has been reached when the eruption has appeared. It is a physiological attempt of nature to throw out toxic matter on the surface of the body, thus being beneficial to the patient. The eruption is a reaction from the high temperature. The rash is usually seen on the forehead and temples, rapidly spreading over the face and neck. Within forty-eight hours the entire body and extremities are covered. It will be noticed, the rash in measles is less rapid than in scarlet fever or smallpox. The papule makes its first appearance as a small red speck similar to that of scarlatinal rash, except that it is not so intensely red in color; the rash of measles, moreover is usually arranged in crescentic patches.

There are three things to look for in distinguishing measles:

(1) The order in which the rash distributes itself. See that the eruption appears first on the face, then the neck and lastly the body. The papule is a small red spot which resembles a flea bite when feeling it between the fingers, but is like the pimples of smallpox except that it lacks the shot-like sensation to the finger. Examine the eruption with a magnifying glass and take care to note whether the spot is of a dark red appearance or not. If it conveys a dark red appearance it cannot be mistaken. Darkness is the background, it is primarily venous blood.

(2) See that the eruption is a round papule.

(3) See that the eruptions are arranged in crescentic groups, which are characteristic of measles. The crescentic arrangement appears in eruptive conditions of syphilis, but the character is different.

These three points will enable one to distinguish measles from all other forms of diseases. The eruptions usually lasts two or three days and disappears with more or less desquamation. Pustule condition is very rare. This being found only where a condition of blood poisoning ensues. It is at this stage that catarrhal symptoms may be found in connection with hemorrhage out on the surface of the body, which is evidence of the malignant type. This form is characterized by the escape of blood from the blood vessels into the skin, making diffuse dark red patches. In some of the cases of this character there may be given slight relief by treating the heart, especially if the mucous membrane and connective tissue have become filled with this black or congested blood.

In German measles there is no condition of chilliness, the other nervous conditions that go along with the chilliness, like in regular measles. This form begins with a slight fever, sore throat, complications are catarrhal symptoms, with an eruption which is called punctiform. German measles is infectious, but not generally considered contagious. The period of incubation usually lasts from two to five days, even shorter periods than this. If it remains for a longer period than five days there are complications.

In all types of measles during convalescence look for lymphatic disturbances, i.e., enlargement of the lymphatic glands in the neck and cervical regions in this condition there is danger of pneumonia, because of absence of the lymphatic flushing of the lungs. To abort pneumonia treat the lymphatics at fifth and sixth cervicals, this will flush the lungs.

Convalescence is generally slow. The fading of the eruption and the scaling of the skin occupy ordinarily from four to sixteen days. The skin does not peel off to the same extent as in scarlet fever, the scales being always small and not patches. The fever which has persisted during the eruption now begins to decline, though the cough and inflammation in the eyes may continue for some days subsequently.

Treatment. (1) The muscles are rigid and hard and require relaxation by inhibition and articulation. Muscles involved are -
(1) Anterior part of neck; (2) Lower half of cervical portion;
(3) Interscapular area.

(2) Attend to the symptoms of coryza, and the eye - (a) The lymphatics in the neck should be treated over the anterior transverse process of the last three cervical vertebrae; (b) Then give treatment to the eyes and face. Treat the eyes by working them with the fingers and thumb from the outer to the inner canthus and continue the same treatment down along the side of the nose. After this treat the side of the face from the inner canthus to the angle of the jaw. This stops the watery condition of the eyes in measles.

(3) Ruption. The treatment in connection is applied to the throat and hyoid bone beneath the chin and continue pressure along the path of the lower jaw until you come to the angle and thence down to the clavicle. Several of these treatments will control the lymphatic system.

(4) Bronchial symptoms - The bronchial capillary stasis may be dealt with in two ways: - (a) The blood supply to the lungs at first and fourth dorsal vertebrae. Give strong inhibition if there is cough and stimulate when it settles. This gives direct control over the spinal nerves and sympathetic system, because the first four nerves go to the affected part. (b) Deal with direct nerve supply to bronchi by treating second to fifth ribs. This is done by standing at the side of the patient and putting thumb at angle of rib, then pulling patient while hand is remaining on the same side, which pulls thorax around. The object of this treatment is to give normal articulation of the ribs and to relieve normal intercostal tension.

(5) Preserve even temperature in patients room. Light diet should be given to sustain strength of patient. A nutritious diet should only be given during convalescence. Patient should be kept in darkened room. A red window glass that subdues light serves to stimulate the patient. A blue light is said to give a palliative effect.

(6) The symptomatic conditions of inflammatory processes of eyes, nose and throat and also of the intestines should be treated. The ears should also receive treatment, for deafness is too often a sequel to measles. This is accomplished by seeing that the atlas is held to its normal adjustments. In applying treatment to the intestines the splanchnic tract is called into play, treatment being applied to the sixth to twelfth dorsal inclusive, and also the fourth and fifth lumbar vertebrae.

(7) If eruption is delayed or does not appear it is well to apply treatment to the lymphatic system and also sweat system. Centers for this treatment are located at the regions of the lower cervical and upper dorsal and lower dorsal and upper lumbar vertebrae.

(8) Stimulate the superficial circulation and acceleration of heart. Centers are located at fourth and fifth dorsal for circulatory treatment and the acceleratory treatment at fourth and fifth cervical.

(9) Headache is a reflex neurotic condition due to physical and mental exhaustion, should be treated by application of strong inhibition at the sub-occiput and by direct treatment downward to the jugular venous system.

(10) Apply vibratory treatment along the anterior aspect of the throat if the catarrhal condition becomes marked.

(11) Apply treatment to the fifth nerve by holding the patient on both sides of the head at the angle of the jaw while having the patient open and closing mouth. Stimulation and then heavy inhibition at the supra-orbital notch, infraorbital foramen, mental foramen, often gives relief.

In cold with running nose relax muscles of neck thoroughly then drain cerebro-spinal fluid through the occiput.

In connection with headache - give jugular treatment to establish venous drainage. With patient on back, lift arm up and then raise the clavicle.

Table exhibiting the difference between Smallpox, Scarlet Fever
and Measles.

MEASLES. The period which relapses between exposure to contagion and the beginning of the disease is usually from seven to fourteen days.

Fever is moderate; it does not decrease, but often increases when the eruption appears.

The eruption makes its appearance on the fourth day, first on the face and neck, it spreads gradually for two days over the rest of the body.

The eruption appears in crescent shaped patches, the intervening skin being unhealthy.

The rash lasts five days, at the end of which time the skin peels off in fine scales.

Tongue is coated and red at the edges.

Running of the eyes and nose and bronchitis.

Sore throat is very rare.

The mind is not affected.

There is no secondary fever, i. e., after the first fever has subsided, which happens during the second or third day after the appearance of the rash no further fever occurs.

Measles is often followed by chronic bronchitis, consumption, and inflammation of the eyes.

SCARLET FEVER.

The period between exposure to contagion and the beginning of the disease is variable, often being from three to six days, but may be several weeks.

The fever is intense, continues without interruption after the eruption appears.

The rash makes its appearance on the second day, first on the neck and chest, then over the entire body in eight or ten hours.

The rash is distributed uniformly over the skin, without intervening patches of healthy skin.

The eruption lasts six or seven days, when it begins to peel off in large flakes.

The tongue is covered with numerous fine red points like a strawberry.

There is rarely any noticeable bronchitis or running of the eyes and nose.

Sore throat is always present.

The mind is usually affected, there may be delirium and convulsions.

There is no secondary fever.

Scarlet fever is often followed by Bright's disease, dropsy, inflammation of the eyes, deafness and enlargement of the glandular structures about the throat, sometimes by paralysis.

SMALLPOX. The period between exposure to contagion and the beginning of the disease may vary from five to twenty days and usually about ten days.

The fever is usually high subsiding when the rash appears

The eruption makes its appearance on the third or fourth day, being at first seen around the mouth and on the forehead.

The rash consists at first of pimples which become watery blisters a day later. Finally the blisters become white and umbilicated.

The tongue is heavily coated and often swollen.

There is no running of the eyes or nose, and not often bronchitis.

Sore throat is often present, not so marked as in scarlet fever.

The secondary fever always appears after the rash has been visible for several days.

Smallpox is not usually followed by other diseases, although the pocks may result in very serious damage to the eyesight, as well as cause unsightly scars on the face and skin over the body.

INFLUENZA - (La Grippe)

Here we have an acute infectious disease whose exciting cause according to the average practice of medicine, is due to the bacillus of Pfeiffer.

Etiology. The predisposing cause is due to low vitality of the patient. Influenza is characterized by - (1) Extreme prostration (2) Great disturbance of respiratory function, and sometimes (3) Intense catarrhal conditions; Severe headache and intense muscular pains, beginning at the upper portion of the body and extending downward are also marked symptoms. Complications are: (a) Stomach; (b) Intestinal and (c) Bronchial diseases. One of the most common complication is insanity, melancholia, blues, etc. People whose disposition is contrary to these things or conditions are generally troubled with a fitful temper. These forms are the most troublesome that are found. Other conditions are found in the old, pneumonia the most common complication. It may last for a period of six weeks or more, the time depending on the vitality of the patient. A catarrhal condition of the intestines is a general complication in this class of patients. One notable fact in influenza is when it gets a start it always settles in the weakest part, so that along with the la grippe we may have here another condition, resulting in bronchitis, pneumonia and inflammation of the intestines. By this fact we will be enabled to see the influenza is not a fatal disease, but its complications are fatal. Influenza is an epidemic disease, periodical appearance depending on atmospheric conditions with the tendency to take most of the people of a locality, possibly to some extent it is contagious, the contagion taking place in connection with the air as a medium.

Pathology. Starting point of the Grippe (1) is a static condition of the venous blood and all of the minute nerve terminals of the nervous system.

There are no distinctive morbid anatomy changes, excepting an intense contraction of the blood vessels in the head and also the muscles in the sub-occipital and upper cervical regions, later all the muscles of the body. The morbid anatomy of the complication is the same as the complication corresponding with the case.

Endocarditis - it is not a toxic condition but a vaso-constriction condition - it is also a complication that is frequently found.

Symptomatology. The period of incubation extends from two to four days, sometimes being lengthened, but always in connection with this complication followed by a period of development extending to 30 or 35 days. The onset of influenza is sudden, (1) commencing with a chill or a series of chills, and sometimes with severe rigor, in this case the body is thrown in a rigid arched condition. (2) The temperature rises suddenly, being from 100 to 103 in the first stage. If the temperature is above that the type of influenza is very severe. (3) Next symptom is severe headache. The patient will describe the headache as a squeezing

of the head between two wise. This feeling can be accounted for by the fact that the blood is squeezing between its vasoconstrictive influences. (4) There is also pain in the back extending around the ribs, and then extending to the lower extremities. (5) Among other symptoms of influenza are the cardiac symptoms of cardiac depression. (6) Mental depression is always found in connection with these heart symptoms, restlessness, sleeplessness, delirium, being the accompaniment, due to lack of control of the nervous system.

Another type is the catarrhal type - cold in head, coryza, sneezing and sometimes gastric symptoms. In this case we find a weak pulse and dyspnoea.

Sometimes the patient recovers from influenza and catarrhal type and falls into phthisis. It is in these cases that you get melancholia and very marked depressor symptoms. This is due to lack of vaso-constriction in the lungs.

It is sometimes very difficult to differentiate between influenza and a simple cold. When there is coryza and a watery eye it is hard to differentiate between influenza and measles, but the absence of rash serve as an evidence of the disease.

Treatment. (1) Headache. The headache in influenza is a nervous one, the seat being both superficial and deep, caused by a constriction and static condition of the blood. In the adult this headache causes stupor and delirium, while in the child it causes convulsions. The object of treatment is to unlock muscles and to remove the static state of the blood. Apply inhibition to the sub-occipital region down to the fifth dorsal vertebrae, vaso-constriction of superficial, inhibition of second dorsal to second lumbar, the rhythmic treatment in same area. Headache is frequently located in the eye, sometimes in the upper part of the nose. In this case apply strong inhibitory pressure at the sides of the head between the ear and outer canthus of the eye. Also give lymphatic treatment and treatment of the branches of the fifth nerve. To abort headache, give deep inhibition from second to fifth dorsal.

(2) Cough is due primarily to bronchitis. There is a difference as to opinion concerning this: Luesser says it is due to tracheitis. Treat pneumogastric nerve and its laryngeal branches. It develops with body weakness, and is to be treated as a complication. Relax the muscles of the neck and scapular muscles, left scapula being most commonly involved, also apply inhibition to the trachea and chest above the fourth rib close to the sternum. The cough that involves the right scapula is a cough that arises from the liver, stomach, etc.

(3) Neuralgic pains may be developed independently if the blood in relation to pressure or from catarrhal conditions. (a) Treat by applying inhibition to the fifth cranial nerve; (b) Free the circulation around the upper part of the neck and clavicles. Complications as paralysis is liable to take place and a diphtheritic membrane is liable to form if the condition is not removed by the above condition treatment and a paralysis of the secretory functions. Apply treatment from the hyoid bone to the angle of the jaw and also to the side of the neck. Where there is a lesion of the hyoid bone place the thumbs at the hyoid bone and draw them

backward, applying moving pressure all the while until you have reached the angle of the jaw and then move the thumbs downward along the side of the neck. This relieves and cures hoarseness. Gastric and intestinal neuralgia is a nervous complication and can be relieved by strong inhibition in the region of the stomach or intestines or in the spine, accompanied by a general, light inhibitory treatment.

(4) Palliative treatment applied to the middle dorsal and lumbar regions. Pelvic pains are due to congestion. They are most frequently found in the female sex, especially those of menstrual irregularity. Free the circulation by treatment at third to fifth dorsal and ninth dorsal and upper lumbar, in this case by articulation and rotation and treatment in the lumbo-sacral region. This for co-ordination of the two nervous systems. This treatment may be given with the patient on face, catch the spinous processes and pull towards you, also catch the ilium and push from you. Also get movement by flexion of the limbs, pull the limb as far as possible by screwing the femur on its articulation with the pelvis. When pain in the muscles continues, they are due to cerebro-spinal congestion the muscles should be relaxed by inhibitory pressure and followed by articulation of the spine downward.

(5) Pay attention to the liver spleen and kidneys by applying local rhythmic treatment. The heart is dealt with by applying sympathetic treatment in the upper cervical and sacro-coccygeal areas.

(6) Treat the nervous condition of the patient with the view of building up the nervous system from the side of control. This is the foundation on which influence is built. The treatment should consist of: (a) articulation, rotation, extension of the head and neck, also raising of the clavicles; (b) local treatment of the eye, nose and mouth; (c) give the patient thorough spinal treatment from the upper dorsal to lower lumbar regions. This is an articulatory treatment, so lay the patient on face and pull the vertebrae toward you; (d) deal with the constipation and diarrhoea. These conditions are found alternately sometimes; (e) give specific vaso-motor treatment in the upper cervical region; (f) pay particular attention to the glandular system throughout the body. For elimination treat the sweat and lymphatic systems and the liver and kidneys; (g) give light invigorating and strengthening diet, but not a nutritious diet. See that the diet is not in excess with the increase of blood. Give a moderate supply of water.

D E N G U E - (Blood disease.)

This is an acute infectious disease, sometimes called the boring or bone disease. The most marked characteristic is a double febrile paroxysm, i.e., two or three fevers going on at the same time. The most marked symptoms are (1) Severe muscular pains; (2) Extending into the joint; (3) Exudation of synovial fluid and frequently (4) Causing an eruption of the joint, or around the joint. This is one of the so-called tropical diseases which have been imported into this country by travel. It is a blood disease and is marked partially by vasomotor symptoms. There is no specific morbid anatomy.

Symptomatology. The period of incubation lasts from three to six days. (1) The onset is very sudden with a slight chill, (2) followed by intense boring headache, (3) There is great pain in the joints, resembles gout or rheumatism, (4) there is also a bone pain as if forcing a hole in the bone. (5) If swelling continues there is rise in temperature, because of the infiltration. There is also an eruption. (6) The pulse becomes rapid, respiration very quick, face flushed and swollen, severe nausea and vomiting. (7) At this point in the affection it is difficult to differentiate the disease from yellow fever, one chief difficulty is in the temperature. Later there is hemorrhage and rupture of certain points, sometimes in the lymphatic system. (8) In all cases there is constipation. One of the marked condition is scanty urine. Fluids that should be excreted will be found around the swollen joints. (9) After these conditions, the swelling, dilated neck, constipation, etc., have abated the temperature falls and the fever disappears, leaving the patient without strength. It is at this period that the eruption appears, marked here in convalescence. After this the second febrile condition develops. Convulsions appear which are due to the nervousness of the patient. If the convulsions are light, or if there is an absence of them, there is a hopeful outlook for them. If patient is going to die the convulsions become very severe.

Sometimes it is difficult to differentiate between this disease and rheumatism. The pain however is more widely distributed than that of rheumatism.

Treatment - The main point in connection with the disease is the absorption of fluid from the normal channels where they are found, therefore,

(1) Attend to the constipation and scanty urine if present. The febrile condition can be aborted if the constipation can be controlled;

(2) Constitutional treatment direct to the spine, especially by articulating the cervical region. Here the great vaso-motors centers which control the upper portion are located.

(3) Treatment of the sub-occipital, upper dorsal and lower lumbar regions. These are the three areas which control the blood in the three cavities of the body.

(4) Attempt to control the temperature by usual inhibitory pressure in the upper cervical region.

(5) The intense pain may be controlled by strong inhibition along the spine. If the pain is localized treat the local spinal area. If the patient is stiff and rigid give inhibitory pressure to the muscles and then knead them, and also give rotation.

(6) Manipulate the joints freely, unless there is a tubercular condition. If there is an existence of a tubercular affection in the joint it should not be touched.

(7) In the eruption the beginning is the same as in a typical case of scarlet fever. Hasten out the blood eruption by stirring up the blood and lymphatic systems.

(8) Look out for change from constipation to diarrhoea. It is here that the disease is fatal. In this affection the spleen is at fault instead of the liver. Deal with the constipation from eighth to twelfth dorsal vertebrae, also the upper lumbar vertebrae, particularly on the left side. Give rhythmic treatment in this case. If diarrhoea comes on, especially if associated with profuse sweating, apply inhibitory treatment in the lower cervical, lower dorsal and upper lumbar regions. The object in doing this is to check the sweat and lymphatic systems. The lymphatic center is found in the lower cervical, anteriorly. It is a blood disease originally, but its complications of fatality is lymphatic.

(9) In unbalanced nervous system inhibit upward from lower end of spine to occiput. Why? To check the cerebro-spinal system through the sympathetic side.

(10) Intoxication of the system. Toxic deposits are found principally in muscular and nervous systems. Get the detoxinating effect of the system from the pineal gland - first, third, fourth and fifth cervical vertebrae for nerve and blood supply.

(11) In condition of paralysis articulate the spinal area. then give treatment to paralyzed part.

(12) Constipation resulting as a reaction from toxic fever is usually a vaso-motor condition. Treatment --

(a) Vaso-motor center in medulla, first to fifth cervical nerves;

(b) Then from second dorsal to second lumbar, especially at ninth dorsal;

(c) Next treat the abdomen;

(d) If paresis exists in the colon treat from sigmoid flexure to ilio-caecal valve and then back.

(13) Constitutional treatment, meaning general articulatory spinal treatment for vasomotor constipation. Gives a static blood supply in intestines.

CHOLERA

An acute infectious disease exciting cause being of specific origin; is associated with the comma bacillus of Koch. (a) The initial stage is marked by vomiting and diarrhoea, showing that the alimentary canal is involved.. (b) Sudden prostration. (c) Following prostration there is extreme pain in the form of cramps resulting from vomiting and diarrhoea associated with the sympathetics
~~The germ has no action on the system~~

Pathology. (1) Is the weakened condition of the mucous membrane of the stomach and intestine. The germ has no action on the system until in contact with the mucous membrane of the stomach and intestines. The toxin of the germ found in the blood will give choleric symptoms. This is said to be the basis of cholera morbus conditions. If the stomach is normal and the mucous membrane intact the germ will not attack the patient, because the gastric juice is germicidal. This is a reasonable point and one that can be used in our drugless therapy. In cases where there is an alkaline condition of the stomach and intestines, acids are given to neutralize them, we will be enabled to overthrow them this method by stimulating the secretions to the stomach, which, when restored to its normal condition will be enabled to supply secrete a supply of gastric juice that will be sufficient to kill all germs which have found lodgement. When the stomach becomes alkaline cholera is liable to develop. The predisposing causes are climatic heat, unhygienic conditions, moisture, residence near the sea shore, etc. The ozone from the sea weakens the mucous membrane. Excessive use of food or drink are also exciting causes.

(1) One characteristic condition is a rise of temperature after death, with a rapid onset of rigor mortis, Dengue and Cholera are akin - the body tends to throw off its fluid and leaving greater solidity. The condition is primarily due to excessive contraction of the muscular system and exhaustion of the fluids.

(2) After death we have also the mottled condition of the skin. This is due to a hemorrhagic state, induced by dissolution of the blood. Rapid metabolism caused by excessive vaso-constriction.

(3) Another important condition in connection with the cholera is the shrunken and contracted state of the stomach and intestines due to excessive vaso-constriction and peristalsis and an alkalinity of the tissues, so that there is not only a breaking down of blood, but also the mucous membrane and Peyer's patches, the secreting glands in stomach and intestines.

There is always a sudden emaciation and a weakening of the tissues, especially the mucous membrane, resulting in transudation of the serum from the stomach into the intestines. If the intestines are catarrhal, cholera will immediately take hold of them. If the mucous membrane is anemic the cholera will take hold of it very readily.

In Typhoid cholera, which is a complication between typhoid fever and cholera, all the glands of the intestinal tract are involved.

In most cases of cholera, post mortem, the mucous membrane is raw and irritated. Other pathological conditions are (1) Engorge-

ment of the kidneys and liver; (2) There is a condition of fatty degeneration of the liver, spleen, kidneys and heart; (3) In the bloodvessels there is a condition of hyperemia, followed by anomia with regional congestion. This is especially true of the medulla.

The pathological conditions may be summed up as:

1. A shedding of the epithelial tissues;

ii. Disintegration of the white and red blood corpuscles. Resulting from these changes and actions of germs there are three stages:

(1) Pain without diarrhoea, nausea, headache, temperature not much deranged from normal. This period lasts from five hours to a week;

(2) Stage of collapse. Here the diarrhoea is profuse and beyond control with painful and characteristic grining pains. Along with this there are muscular pains, intense thirst, surface of the body ice cold, while the internal temperature ranges from 103 to 104. A condition of stupor and coma prevails. This stage lasts from twelve to fifteen hours.

(3) If the patient survives there is a reaction, the first evidence of which being warmth.

iii. Separation of fluid from the solid elements in the blood.

Following stupor and coma in the-~~thi~~ (3) the excessive diarrhoea ceases, and in its place there is an excessive flow of urine. If it is possible to restore heat and establish a urinary flow there are great chances for the patient's recovery.

Treatment. (1) Preventative treatment, sanitation, disinfection, etc., as are specified in typhoid fever. Water should be boiled. Give freely digestible food-predigested, as pancreatin, etc. Do not deprive patient of food, for this is a disease that is due to a certain extent of scanty food.

(2) Freed of lesions. Specific treatment to the greater splanchnics in the abdominal region, sixth to tenth dorsal. (a) Also give a similar light treatment locally over the abdomen; (b) Strong stimulation to the right pneumogastric nerve is also of value on account of the influence of the pneumogastric over the stomach, heart and lungs. It is best reached on the right side of neck, either at atlas or clavicle, where it lies in the sheath of the carotid artery. All impulses, whether they may be stimulative or inhibitory through the pneumogastric nerve, are sent to the anterior portion of the solar plexus where the impulse is adapted to the needs of the organ, e. g., if stimulation is applied to the nerve, and the stomach should be already overstimulated, the solar plexus would adapt the stimulation to the needs of the stomach, and would reflect an inhibitory impulse to the stomach. Hence, through this power to adapt impulses to the needs of what it controls the solar plexus has been justly named the abdominal brain.

(3) Peristaltic action is excessive. (a) Strong inhibition upward from the eleventh dorsal;

(b) To relieve the superficial circulation should be stimulated at third and fourth dorsal by rhythmic treatment;

(c) The intestines should also be irrigated with antiseptic soap and water in order to remove irrigating substances;

(d) Injection of a normal salt solution into the intestinal field. Maci may be used with the soapsuds to a good advantage;

(e) Light inhibition over the field of the colon, beginning at the sigmoid flexure.

(4) Vomiting should be dealt with by the usual method - inhibition at sixth and seventh dorsals, rhythmic treatment at fourth and fifth, and in severe cases inhibition at fourth and fifth dorsals.

(5) Diarrhoea may be relieved by strong inhibitory pressure treatment to the splanchnics, fourth, fifth and sixth dorsals. In the first stages the diarrhoea is painless, but in the second stage it becomes painful. After the splanchnic treatment strong inhibition should be applied to the right vagus. When the sodium chloride (NaCl) is injected into the blood there is a good effect. Makes the blood isotonic. People who use hard water constantly for drinking purposes can soften it by taking borax internally as borax breaks hard water.

(6) Treatment for insomnia (1) Rhythmic treatment of carotids;
(2) Inhibition at seventh cervical and first dorsal vertebrae.

(7) If pain in heart control it by treatment of the superior cervical ganglia.

(8) In cases of incoordination of lungs and heart when patient is very weak give rhythmic treatment to the left pneumogastric nerve.

We found two keys of treatment:

- (1) Warmth of body - Superficial circulation;
- (2) Stir up urinary elimination.

CHOLERA MORBUS

Cholera morbus is an acute catarrhal inflammation of the stomach and intestines, characterized by - (a) Severe abdominal pain; (b) Colic, first local then diffuse; (c) Vomiting; (d) Muscular cramps, and (e) Diarrhoeic purging. When this condition is present in children of less than two years of age it is called Cholera Infantum, Accompanied by convulsions from the very beginning.

Treatment. (1) The best way to apply treatment is with the patient sitting on the stool. Place your knee against the spine of the patient at the lower dorsal region and pull backward from the shoulders with a slight rotary movement, pressure at ninth and tenth dorsals, give extension. Continue the rotary movement from the shoulders, while moving the knee upward until reaching the fourth dorsal; (2) If the patient collapses give strong stretching treatment to the spine and follow by inhibitory pressure through the middle dorsal region; (3) Apply light pressure over the umbilical region, continuing the pressure and increasing it when the solar plexus has been reached; (4) Give vasomotor treatment in the neck, first to fourth cervical.

Cholera morbus is a blood condition;

Cholera infantum is a lymphatic condition. In this which is a colic resembling cholera morbus, but occurring in infancy, hence its name.

(1) The child is taken in the hands while lying on its back; with one hand being placed at the shoulders and the other at the pelvis, place the child's back on your knee at the ninth dorsal region and allow it to drop gradually. In this way you will get pressure and stretching of the spine combined.

(2) Give the child light inhibitory treatment along the spine, beginning at the upper part of the spine and moving downward. This treatment can be applied to a very small child with no fear of injury. In applying inhibition to the child it should be placed on the face. The reason for this is that the visceral organs drop away from the spine. Where there are cramping pains give light kneading to the abdomen and slight pressure.

(Hazzard says - "Correction of lesions protect the patient against further attacks: - Inhibitions from the ninth to twelfth dorsal quiets the sensory nerves of the viscera, deep inhibitive treatment on the abdomen over the seat of the pain quiets it, vomiting checked by the usual osteopathic procedure, and the cramps in the calves of the leg are relieved by strong inhibition over the sacrum and the popliteal nerve in the popliteal space."

(3) If the attack can be definitely traced to the consumption of unripe fruit or other irritating food, but little treatment is required; the trouble subsides after the stomach and bowels have been thoroughly evacuated. After the acute symptoms have thoroughly subsided, the patient should remain warmly covered for a few days.

and be careful to take no other food than milk, eggs and broth.

(4) In preventative treatment of cholera infantum the attack may be often averted by regulation of diet as soon as the first symptoms appear - slight fever and diarrhoea are manifested. At this time the child is very thirsty and desires to nurse freely because of this thirst and not because of the hunger. By frequent nursing, the stomach, whose digestive power is already impaired, is overloaded with food, as a consequence, vomiting or purging, or both may ensue. (a) The child's diet should be regulated; (b) Begin to give the child water with a teaspoonfull. The child should be allowed to nurse not oftener than once in two or four hours according to age and should not have more than two table-spoonfuls at once. If the child is at the breast, and the supply of milk is satisfactory in both quality and quantity, the simple regulating of nursing as above indicated and the careful avoidance of other food, crackers and scraps from table, etc., may be able to effect a cure. (c) The diet should be somewhat varied. If the child is weaned, or is largely dependent on artificial food, the greatest care should be taken in feeding. No solid food should be given, even if the child has been accustomed to it, the feeding bottle and tube should be carefully cleansed, if there are any joints in the apparatus, this should be discarded and another bottle obtained which has no joints nor cracks where the milk can collect and ferment. The best substitute for mother's milk is barley water of the same consistence as good milk, to this cream should be added, about a teaspoonful to half a glass of barley water.

(5) As has been previously stated, efforts should be made to check the vomiting and purging, and to reduce the fever when the attack begins - (a) Circular friction can be applied to the abdomen in order to stimulate circulation superficially to that part; (b) followed cold baths are effectual in helping to reduce the fever - about 65 or 70. These must begin with great care, the room should be warm and the child protected from draughts of air. If the child is already in a febrile condition, at the beginning of the bath the water should have a temperature of 100 F, and cold water should be gradually added until the temperature is reduced, in the course of ten minutes, to 80 or 75 F; the child is then removed, briskly rubbed with a coarse towel, and warmly clothed. Several baths are usually required in the course of the day until the fever subsides.

PLAGUE

Sometimes called bubonic plague, is an acute infectious and contagious disease - (a) Involving the lymphatic system; (b) characterized by enlarged lymphatic glands, much like mumps and (c) secondarily marked by lymphatic disturbances in other fields. swelling, congestion, exudation extending to all parts of the body. In the oriental countries the plague in fatal cases is marked by disturbance of the glands in the inguinal region also those of the femoral region. We have hyperemia, infiltration, inflammation, disintegration and suppuration. In civilized countries - England and America - the cervical and maxillary glands are always involved. There are two main varieties of plague:- (1) the bubonic and (2) the non-bubonic. The non-bubonic is divided into two varieties, viz. (a) the pneumonic and (b) septicaemic.

(a) The first form is the most virulent form, being marked by the buboe or eruption. The buboe is an attempt of nature to throw off the toxic matter in the system. Pulmonary system is involved.

The definition may be termed as an acute infectious and contagious disease, marked by (a) high temperature; (b) inflammation of the lymphatic glands with marked tendency to bubonic eruption formation and aggravated hemorrhage. We have cough, rigor and chills.

Pathology. (1) Hyperemia, followed by infiltration of the lymphatic glands. (2) Enlargement of the glands from a congestive order, followed by (3) Exudation of the glands and infiltration in the tissues. (4) Inflammation leading up to (a) disintegration of the gland cells and (b) Suppuration.

Etiology. The disease is found principally as an epidemic, especially in localities where an unhygienic and unsanitary condition exists. The disease is contracted by direct contact with food, or respiration and the sputum of the patient when becoming dry. It is sometimes spread by mice and rats. Some writers claim that there is a specific germ. The germ is of the bacillus type, being short, round and rod shaped. It is said to be identified with the germ of chicken pox cholera, but the chicken cholera germ is a germ of the blood, while the germ of plague is a lymphatic germ, so-called because it is always associated with lymph. The germ is free and motile, its movement being produced by its flagella. It is never found in any tissues except the glands. It has been located in the intestinal tract, but the intestinal secretions are fatal to its vitality.

Symptomatology. (a) There is a premonitory stage for two or three days in which the patient expresses it as a feeling "out of sorts"; (b) Following this there is a sudden rise in temperature, accompanied by intense headache, thirst, nausea, vomiting; (c) Pain wherever originates extending into the lymphatic system followed by, (d) Delirium; (e) In severe cases the first symptoms are chills, rigor and diarrhoea, however this is not an accompaniment of the disease; (f) Hemorrhage is also found in fatal cases, this means that we have a reaction from the lymphatic field to the

blood field. These symptoms usually last from two to five days and may repeat themselves. (g) In a child there is a convulsive condition, just before the appearance of the buboe or bubonic eruption. If there is any abrasion of the skin there is an open sore. Along with the appearance of the buboe or bubonic eruption there is a dry and cracked condition of the skin. Frequently there is a rash that appears over the neck. This rash sometimes extends over the entire body, and resembles the rash of typhus fever. After the buboe has formed the temperature falls and the rash disappears. In severe cases the vaso-constrictors are constricted over the entire body and it is impossible for the heart to stand the pressure. Now, if this intense condition will succumb to inhibition, the buboe will disappear and the patient will recover. but if not, the buboe will disappear suppurates and a gangrenous formation arises from this owing to absence of a normal blood supply. (h) Other symptoms are constipation during the first two or three days, followed by diarrhoea. The diarrhoea is associated with enlargement of the liver and spleen. (i) The heart is weak and resembles the same action as in marked brain fever symptoms. There are trembling tremors or paralysis. If there is a continuance of fever for ten days there is great vitality, and the patient is liable to recover. Plague is not so dangerous a malady, as one would suppose, when the patient has proper attention. When the plague broke out in England in 1902 the average death rate was nine out of every seventy. This shows that in districts where proper attention cannot be devoted to those afflicted with the malady, that the disease proves more fatal.

In the non-bubonic plague, i. e., where the bubonic eruption or rash instead of the typical bubo, of the pneumonic type one of the first symptoms is a (1) Cough, accompanied with (2) Pulmonary depression. The case usually begins with rigor and chills followed by an intense cough which is incessant, difficult breathing, and (3) Profuse sweating of blood. In post mortem conditions we find that the toxin has settled directly in the lungs. The fatal termination is when the buboe spreads over the entire lung. By microscopic examination we find that the lung is covered with minute buboe formations.

In the septicaemic type the toxic products are distributed over the patient's body, especially the nervous system. The characteristic enlarged glands are present, but no buboe formations but bubonic rash. There is an enormously high temperature which is beyond control, at first followed by subnormal temperature.

The last two types are most fatal on account of the toxic matter being internal and not coming to the surface.

Treatment. (1) Bring out the eruption and buboe, which are likely to appear on third, fourth or fifth day. The appearance of buboe is usually marked by high temperature which is characterized by a fall.

(2) Do not lower the temperature by water or any other agents, because it is a reaction of the organism, ~~treat-for-oxidation-instead.~~

(3) Strong stimulation to the lymphatic areas in the upper dorsal and upper lumbar regions. Why? Because it is the cerebral spinal side, i. e., coordination.

(4) Establish free communication between the blood and lymph by rhythmic treatment at the sixth and seventh dorsals.

(5) Stimulate the lymph circulation at the receptaculum chyli. Treat second and third lumbar vertebrae upward, then stimulate the venous circulation.

(6) In the pneumonic type direct treatment should be applied to the vasomotor system of the lungs so as to keep them well stimulated, third to seventh dorsals.

(7) In the septicæmic type pay close attention to the liver, spleen and brain. The septic condition is liable to settle here, so it is well to keep them stimulated.

(8) Deal with the tendency to constipation which is due to congestion which produces a ceasing of peristalsis. In other words this is a vasomotor trouble which settles down in the motor type. Treat motor conditions. In treatment:

(a) Relieve vasomotors by stimulating the areas of the intestines, ninth to twelfth dorsals;

(b) Overcome congestion of the mucous membrane by inhibitory treatment in the lumbo-sacral region upward. Counteract the hyperemia of the intestines by the point controlled from the spine;

(c) Inhibit upward the splanchnic area;

(d) Inhibition to the right vagus, leaving to the last, because the intestines are bound;

(e) Opening of the excretory system, urinary and then sweat. Open the urinary first because the sweat system is liable to be opened too much. Deal with the urinary system by strong inhibition in the lumbo-sacral region downward, general treatment to dilate muscles of urinary tract, follow by strong articulatory treatment at the first, second and third lumbar which are the points we reach for micturition.

(9) Stir up peristaltic action of the alimentary system -

(a) Stimulate in lumbar region and right pneumogastric nerve simultaneously;

(b) Treatment for dilation of rectum. Paralysis of rectum is sometimes due to medicines. Begin at sigmoid flexure to ilio-caecal region.

(10) Follow this by vaso-motor treatment.

(a) Treatment from ninth dorsal to second lumbar;

(b) Sweat treatment - begin at ilio-caecal to sigmoid flexure.

YELLOW FEVER

Yellow fever is an acute, infectious, paroxysmal and contagious disease. It is divided into three stages; (1) Febrile; (2) Remission, and (3) Collapsing stages?

Etiology. - It is a blood disease with a tendency to transfer to lymphatic system during remission or convalescence. Catarrh and constipation are predispositions to yellow fever. Exciting cause is a germ or toxin. The onset of fever is very abrupt, though in many cases it is preceded by a premonitory period for three or four days by general indisposition, catarrhal dispoesa, mental and physical depression, languor, wandering pains and occasional shiverings or chills, patient feels cold.

(1) The attack of fever usually begins with a chill which is followed by a rise of temperature and is the starting point of the fever; (2) The intensity and duration of the fever vary considerably, depending on capacity of system to resist action of heat, i. e., the body is most susceptible is one that has an excess of venous blood, in many cases the heat of the skin seems but little raised and the fever appears quite out of proportion to the severity of the general symptoms; (3) Catarrh of the stomach, during this fever there is extreme thirst, which is due to catarrh, heavily coated tongue, nausea and vomiting, perhaps, on the second day of real fever, which is accompanied with great pain in the stomach which continues throughout the fever, field of pain changes to nervous system; (4) There is also extreme pain in the head, especially over the eyes, pain in the small of the back, radiating down to the thighs and wandering pains throughout the entire body; Symptoms of congestion, the eyes are heavy dull, shooting pains and are reddened and watery, a very constant mark of the disease. Intense pain in stomach, first general then localized at cardiac end.

(5) Remission stage. After the fever has continued for a time, which may cover from three to four hours to a period of two or three days, there is a decided calming of the symptoms. During this period of the disease the yellowness of the skin becomes apparent; this is nature's effect to eliminate the toxin through the skin surface; (7) In mild cases there is no discoloration and the severity of the symptoms may not occur or rather recur, and the patient recovers slowly. In the majority of cases, however, there occurs the state of collapse, It is at this stage of remission that McCennell says one should be on their gaurd for the patient may be in an alarming state, it is here that osteopathic manipulation will be most efficient, for it is a period of the disease where struggling nature will predominate or death will ensue and if we can render sufficient aid to nature in its crippled condition the disease must be controlled.

Severity of cases seems to depend on capacity of the body to keep up metabolic processes. This means that the field is metabolic and does not enter into cell life.

(8) The most marked characteristics of yellow fever are the jaundiced condition of the skin, high febrile temperature

and double fever paroxysm. Secondary to these we have the black vomit, the suppression of urine, Hemorrhages, and quick respiration.

Bacteriology. - The disease is due to a specific toxin.

As yet no germ has been discovered by the Bacteriologists. Sometimes the poisonous infection is carried through the air by the mosquito. The digestive and respiratory tracts are most susceptible to the infection. Among the predisposing causes are the intensity of heat, unhygienic conditions, overcrowding, physical depression and mental exhaustion. In most cases the male sex is most subject to the disease. Previous attacks are said to be immune from further attacks.

Pathology. - (1) Toxic conditions of the tissues and organs of the body. Catarrhal and chronic constipation. (2) Accumulation of the toxic matter plus the toxic products produced and the action of the yellow fever toxin. The first marked change in the yellow fever is the yellow color of the skin, which is due to the congested condition of the liver. (3) Another marked condition is the hemorrhagic extravasation of the skin, due to bile, acids and salts thrown into the blood. This is what destroys the isotonicity of the blood. (4) The cause of the jaundice is the fatty degeneration of the liver. Following the jaundice the liver is thrown into a state of necrosis which is a wasting away of the liver. (5) In this marked change there is intense congestion of the gastro-intestinal mucous membrane. In this condition there is rupture with intestinal hemorrhage. (6) Here we have inflammation of the kidneys and fatty degeneration of the heart. (7) There is also an exudation of the disintegrated blood into the stomach in black form which gives presence to the black vomit, bile and venous blood. (8) In this last condition there is congestion of the muscles, breaking down of the red blood corpuscles in the tissues, transferred from viscera.

History of the disease. The period of incubation may extend from a few days to twelve days. It usually comes on sudden without any premonitory symptoms. The course of yellow fever is divided into three stages: ---

(a) The onset of fever begins with a severe nervous chill, followed by intense headache and diffused pains and then localized in the inguinal region and lower limbs. There is a rapid rise of temperature from 105 to 106 degrees with a quick pulse and congested face. There is also constipation with nausea and vomiting. The vomiting becomes severe through the next three or four days. If the vomiting gradually approaches the condition called black vomit until it has reached it;

(b) Pulse more rapid, the temperature is high - often 10 of temperature rise 20 pulse beats, regularly one to ten. In this state the temperature gradually falls and all severe symptoms of (a) disappear and patient falls either in a state of collapse or revives. The first symptom to be relieved in convalescence is the gastric symptom, the vomiting, not black vomit. Following the relief of these symptoms the symptoms of diarrhoea should be relieved.

(c) The second paroxysm, chill. Here the temperature rises to the height of the first temperature of the fever. At this stage the condition of jaundice is marked. The vomiting also recurs, here we have black vomit, accompanied with burning pains

in the stomach and an intense thirst, It is at this point that all excretions have become blocked, even the urine. In some cases there is a suppression of urine. During this stage the patient may die of exhaustion or intoxication. The intoxication may be either uremic or albuminuric with debris. If the patient recovers there is a gradual disappearance of the symptoms. The termination of the disease is slow.

Sometimes yellow fever is confounded with the symptoms of neuritis, remittent fever and acute yellow atrophy of the liver.

Treatment - Blood disease with tendency to lymphatic - venous stasis. The first point in treatment is the freeing of the circulation in relation to the clavicles, sub-occipital region in relation to vaso-motor and upper part of dorsal area in relation to vaso-constriction. (1) Pay attention to condition of eyes. Swollen and congested eyes are characteristic of this disease. The contracted pupil is overcome by treatment at 2. and 3. cervicals, dilators, and 2. and 3. dorsals, rhythmic centers. Establish drainage to - lymphatic, blood and lacrimal fluid. (2) Stimulate the lymphatic system, beginning at receptaculum chyli centers, opposite second and third lumbar. (3) Pay attention to the liver. Give pressure over the ribs, from anterior to posterior. Vibratory treatment will stir up the liver. Here the liver is not performing its normal functions. The liver centers to be reached through the spine are at 6., 9. and 10. D., on right side. Give rhythmic treatment. (4) Give treatment for chills at 8. and 9. dorsals on left side. The treatment for chills in this affection by osteopathic procedure consists of: (1) Chill center, i. e., spleen, 8 and 9 D; Temperature treatment to control the temperature apparatus, in upper cervical in relation to spine, follow this by articulation in lymph areas of center, vaso-motor treatment in upper cervical in relation to sympathetic ganglia. Control the superficial and deep circulation to 3. and 4. D, have rhythmic action.

During the second stage or remission pay particular attention to the circulation of the blood by treating points which control the circulation - upper cervical, lower dorsal and 3., 4. and 5. L V Upper cervical region controls the head; Lower dorsal controls circulation to kidneys, ninth to twelfth; Fourth and fifth lumbar control circulation to lower extremities; Upper dorsal-heart.

Attend to hemorrhage if it develops by strong inhibitory treatment from tenth to twelfth D V. Rhythmic treatment to check hemorrhage.

Attention should be paid to the condition of the bile. The bile is diffusing itself over the system which is due to hepatic congestion, and along with this there is frequently a dyspnoeic condition. The difficult breathing is due to the congestion of the lungs. The biliary congestion may be relieved by opening up the mesenteric blood supply by strong inhibitory treatment over the lower splanchnics, tenth, eleventh and twelfth dorsal vertebrae; following this articulatory treatment should be applied to the spine from the area involved.

Give the constitutional treatment which consists of;--

- (a) Relaxing and stretching of the muscles;
- (b) Rotating, articulating and extending the head in relation to the neck;
- (c) Raising the clavicles;
- (d) Treatment along the spine, beginning below and moving upward. Always begin this way. (The constitutional effects are obtained entirely through the sympathetic system.)
- (e) Stretching and rotating the lower extremities, first the lower and then the upper;
- (f) Give the patient a good stretching treatment with the patient lying on the side. This mode is sometimes called the diagonal treatment;
- (g) The diet of the patient is the same as that in cholera.

FOOT AND MOUTH DISEASE

(Lymphatic.)

This is an acute infectious and contagious disease, which affects primarily the lower animals and is transmitted from them to human subjects by contagion. The disease is found primarily in sheep, cattle and pigs. The disease is communicated directly or indirectly, e.g., by contact with the animal, through saliva, etc. It may also come through the milk or by eating the flesh of the animal if the animal tissue has been thoroughly inoculated with the poison.

History. (1) The first appearance of the disease is in the form of a vesicle which resembles a fever blister or cold sore. (2) This vesicle changes to ulcer. This affection affects the mucous membrane of the mouth. In the animal it attacks the soft tissues around the hoof; then the disease passes to the udder of the cow.

Symptomatology. - The period of incubation is from three to four days. (1) Coming on with a trembling, followed by a rapid rise of temperature. (2) After this the vesicles appear. (3) In the human subject the second stage is hemorrhage from the points affected, with great swelling and excessive saliva, from the mouth. The vesicles first found on the surface of the body, where there is a free blood supply. Here there is a change from the lymphatic to the blood side - good size. Later the vesicles appear around the toes, fingers and nails.

The disease is to be differentiated from catarrhal stomatitis. In case of catarrhal stomatitis there is an acute inflammation of a catarrhal nature without the vesicles and ulceration. In the Foot and Mouth Disease there is no exudation of mucous membrane. The disease is also to be distinguished from other catarrhal affections where there is copious exudation from the follicles of the mouth. In ulcerative stomatitis there are small ulcers in the mucous membrane of the mouth, in parasitic stomatitis there are small white spots on the mucous membrane of the mouth.

- (1) Catarrhal diathesis as the basis;
- (2) Hemorrhagic effusion and exudation;
- (3) Vesicle formation;
- (4) Thirst;
- (5) Mental and physical exhaustion;
- (6) Septic condition of the system, especially of the fascia;

Primary condition-of-the cause of the infection is a depleted condition in the lymphatic system. Hence give patient all the water he wants to increase the lymphatic fluid so that the lymphatics will not absorb the fluid, this is also true in tuberculosis.

Treatment. --

(1) Stimulate the lymphatic system, especially in the upper portion of the body.

(2) Attend to the stimulation of the blood, especially the superficial circulation, fourth and fifth dorsal.

(3) The salivary secretory function should be stimulated, i.e., by thorough treatment to the cervical glands and the cervical sympathetic ganglia, followed by treatment to the parotid glands and all others.

(4) Thorough stimulation of the superficial circulation, which is accomplished by treatment at third, fourth and fifth dorsals, coordination of the cerebellum, and then followed by manipulation to the surface of the body in form of light kneading to bring the blood to the surface.

(5) Apply treatment to the excretory organs - kidneys, skin and respiratory system.

To treat kidneys for elimination treat --

(a) The region of the pelvis and kidneys, second and third lumbar;

(b) The urethral field, from kidneys to

(c) Highest point of bladder and kidneys, i.e., down from second lumbar to ninth dorsal.

MILIARY FEVER

Miliary fever, sometimes called sweating fever, represents an acute infectious disease involving the sweat glands. Sometimes it is also contagious depending on climatic conditions, if in a tropical, the disease is contagious, when it appears in temperate climate, the disease is infectious. It occurs just after spring. The most characteristic symptoms are:-

- (1) Profuse perspiration, along with this is,
- (2) Vesicle eruption, superficial to sweat glands. There has been no germ discovered as yet that can be associated with the disease. The disease is due to a toxin which acts as an irritant to the sweat system. This toxin is in some form of metabolic poison thrown out or attempted to be thrown out of the system. This disease rarely proves fatal. The disease predominates in France and Italy. The old idea of the cause of the disease was that the system was deprived of salt. This disease would make a purely localized disease on account of the high price of salt in these two countries.

There are two types of Miliary Fever, one being a mild type and the other a severe type.

- (1) In the mild type there is a slight increase in temperature accompanied with profuse perspiration and well marked vesicular eruption. May be in this case the first trouble is disorganization of the sweat system. What is disorganization, in an osmotic condition in which the sweat system is reduced to a purely physical conditions, absence of physiological conditions, in other words there is slack of control nervously over the sweat glands. Old writers on this subject adhere to the theory that elements acted as a tonic to the sweat system. It is evident, that since there is a lack of nerve control to the sweat system, that here is the vital point concerning the real cause of the disease. To be able to control the system involved one must look for lesions to the condition of the (a) upper cervical, vasomotorly, general vasomotor center; (b) Lower cervical, here we have the vasodilator side of the sweat system for upper half of the body; (c) Lower dorsal; (d) Upper lumbar regions, the cerebro-spinal or dilator side of sweat system for lower half of the body.

This is a regional disease, e.g., it may settle on one side of the head and neck, or one half or one fourth of the body, while the other lateral half may be perfectly free from perspiration. This is a disease that has no constitutional foundation.

- (2) In the severe type the temperature is very high, along with this are marked nervous symptoms, restlessness, with hemorrhage and delirium. In this type the eruption seldom appear. It seems that the eruption is suppressed, owing to the irritation of the toxin on the cells. This is frequently fatal, the patient collapsing quickly in the early part of the disease. The course of this disease varies in different individuals.

History. Some writers claim that its course lasts for a period of seven days, while others claim that its course lasts from five to six weeks. If the course of the disease lasts for only a short

time period of a few days the disease is either of the mild type or has been aborted.

(3) A sub-type to the above type is called Inflammatory Miliary Fever. Instead of the eruption covering the surface it excites inflammation of the superficial tissues, attacks the sub-cutaneous tissues. Now, if a normal blood supply cannot be supplied to this inflamed tissue, a condition of gangrene may ensue and hence an evidence of the death of the tissue.

Treatment.— (1) No cases have as yet been treated osteopathically. The primary point in the treatment, however, lies in the lymphatic and sweat systems. Profuse perspiration can be controlled

(a) By inhibition;
(b) Followed by rhythmic treatment, and
(c) Treatment of the lymphatic system it can be stimulated to normal action. Hence we are able to theorize on the treatment of this disease.

(2) Pay attention to lesions, cases following treatment. It will be seen that the lesions correspond to the theory, i.e., there was a twisted condition on the right side of the three lower C V in which the twisting was anterior, the lower dorsal region irregular, being lateral and posterior with slight breaks through the vertebrae.

(3) Apply treatment to vasomotors. This calls for treatment through the great vaso-motor area which lies in the upper cervical region. The rhythmic action of the sweat glands depends entirely upon the blood. To the constipation and diarrhoea give the alternate external impulses over the abdomen.

(4) Look for the condition of the superficial circulation. Give coordinative rhythmic treatment at third and fourth D.

(5) See that there is a coordination of the two nervous systems, viz., the sympathetic and cerebro-spinal. Articulation of the spinal column followed by articulation of the ribs. The S S controls the solid secretions, the C S the fluid secretions. Then if we should influence the toxic matter in the system we would apply sympathetic treatment. To control the excessive sweating inhibit the sweat centers. The centers of coordination between the two nervous systems are found at the last three cervical, the last three dorsal and the first two lumbar vertebrae.

(6) Diarrhoea is one of the sever complications. In severe type eruption is absent. Constipation in mild type, eruption present. Do not treat the diarrhoea but stop the pain and keep under control treat eleventh and twelfth dorsals on left side. Treat constipation the usual way.

DIPHTHERIA

Diphtheria is an acute, infectious and contagious disease. It is sometimes called malignant Sore Throat.

Etiology. The exciting cause of this disease is said to be a bacillus or its toxin, called the Klabs-Loeffler bacillus. The most important condition in connection with Diphtheria is the formation of a false membrane. It is (a) an exudate, and (b) coagulum, it is an attempted elimination. Diphtheria - disturbance of the entire organism, the membrane has the local expression of it. Some claim that the membrane is the product of the germ.

Symptomatically as well as pathologically there is a disturbance of the entire system. It is difficult to classify this disease but it belongs more nearly to this field than any other. The absolute diagnosis depends upon the finding of the bacillus in connection with the membrane. There are the diseases in which there is the formation of the membrane without the bacillus. Where the membrane is not found the disease is spoken of as diphtheroidal.

The predisposing causes are; (1) An obstruction to lower circulation of tonsils and pharynx caused by the subluxation of the lower cervical vertebrae field; displacements - lateral or diagonal - of the hyoid bone and intense contractions of the muscles of the neck, posteriorly.

(2) Resulting from these and other lesions there are conditions resulting from venous stasis which favor the lodgement of the germs. The germs are not the cause. The bacillus is cultivated by the static condition of the venous blood as it accumulates in the region of the throat. Antitoxin is of no service except in connection with the membrane, but the membrane is not an important part of the disease, it is only secondary to the disease.

The constitutional condition and its symptoms are produced by the products of the bacillus, being absorbed into the blood and lymph. The bacillus is non-motile and hence does not enter the deep substance but is found on the surface. As a point in the disease, the membrane is therefore a superficial condition and involves the superficial circulation. The germ will live for a long time outside of the body and is practically found in every throat, whether healthy or not. The bacillus is also found in catarrh and tonsillitis. Other bacillus are also found in connection with this membrane, e.g., the streptococcus pyogenes. If there is pus formation there is a breaking down of the white corpuscles. In some cases it is communicated with an exudate, e.g., breathing the breath of a diphtheria patient. This disease is generally found in childhood, the age ranging from two to eight years. Aggravations of the disease are found in bad sewerage and bad drainage with a resultant germ atmosphere. Salt sea air is also an aggravation of the disease. The surface atmosphere is worse when the soil is artificial as in the cities where there is an undue amount of grading.

Pathology. (a) Stasis, congestion and inflammation of the mucous membrane of the throat. The diphtheritic inflammation differs from either the croupous or catarrhal form, in that the exudation is not only upon the surface of the mucous membrane but also within the substance of the mucous membrane.

(2) At first there is redness that may appear in any part of the throat which is associated with swelling and an increased secretion not of the normal limpid type of viscid mucous.

(3) As the redness which at first was local spreads over the entire mucous membrane surface when the exudation makes its appearance, causing the formation of the membrane. The deposit may commence from one or several points, such as one tonsil, part of the soft palate or the back part of the fauces, which however, speedily extend and coalesce, forming extensive patches, or cover uniformly the entire surface (Hughes). In fatal cases the membrane forms on the uvula, soft palate, the posterior nares, extending down into the bronchi. It is a yellowish membrane of a dirty greyish yellow color. In the early stage the membrane is of a whitish color which gradually becomes grey, and the yellow and dirty white when mixed, give the dirty grey appearance. It is adherent to the mucous membrane and if forcibly removed it will tear off the membrane at the same time.

In the development of the membrane there are a number of distinct changes in the pathology of the membrane formation. (a) Neurosis of the epithelium accompanied by necrosis of the epithelial cell (b) Typical necrosis with resultant hyaline formation along with the coagulation of blood; (c) Migration of the leucocytes into the field of the process; (d) The hyaline formation increases with the activity of the germs and the inactivity of the white blood cells. The exudate then forms which is the filling.

History. In the mild type the attack comes on suddenly and develops slowly on the surface field. In the severe type it is developed in the deeper tissues, the same stages and conditions prevailing in the deep tissues as exist in the superficial, i.e., there are two corresponding perversions going on - superficial and deep. Another point to be noticed in severe type is the enlargement of the lymph glands. This passes to the spleen and kidneys and also to a fatty degeneration of the heart. The period of incubation is from two to ten days.

In the symptomatology we differentiate three different types of diphtheria --

(a) Pharyngeal, which comes on with a chill followed with fever and sore throat. In this form the membrane formation starts in the tonsilland then spreads to the soft palate and the glands. In this type the temperature is from 103 to 110 degrees F with a very rapid pulse reaching from 130 to 140.

(b) Laryngeal or Membranous Croup. In this type the predisposing cause is bronchitis. It begins with a hoarseness and metallic cough. After one or two days there is difficulty in breathing and a condition of cyanosis of the lips and tips of the fingers. The temperature rises which may be followed by con-

vulsions, spasms, chills or suffocating spells or all of these complications.

(c) Nasal Type, often called Naso-Pharyngeal or Naso-Laryngeal. This type is always secondary to the first or second. The false membrane that has been developed in the preceding type extends into the nose. This is the most dangerous form of diphtheria. The temperature grows very high and there is difficult breathing with an epistaxial condition of the nose.

(d) Traumatic type. In this type the false membrane grows over a cut or bruise, for example, found in the mouth or lips and on the conjunctiva of the eye, also on the mucous membrane of the rectum or vaginal.

Treatment. This is a lymph disease. Involvement of the secreting fluids in throat and then it transfers itself to the blood resulting in venous stasis. When the membrane is formed it is both blood and lymph.

(1) Reintegrate the blood from the lymphatic system.

(2) Constitutional treatment directed to the circulation of the blood and reintegration. If there is any static condition of the blood the stasis should be removed.

(3) Stir up the superficial and deep circulation by rotary and flexing treatment to the upper extremities and neck.

(4) Local treatment to the muscles in the throat. This is a relaxing treatment which should be primarily inhibitory. Treat the hyoid bones, (in children the junction of the two parts of the hyoid bone have not taken place) by taking the thumb or forefinger and placing it on top of the hyoid bone while applying pressure downward and backward toward the angle of the jaw. In most cases the real condition is a tense contracture of the muscles throughout the neck, especially the hyoid muscles. Place the thumb or forefinger at the transverse processes of the upper cervical vertebrae giving articulatory treatment to the neck. Along with this give pressure to the angle of the jaw while patient opens and closes the mouth. Then treat the muscles along the cervical region.

(5) Place the forefingers at the head of the first rib and with the other hand move the head to the opposite direction and giving an anterior and posterior movement to the head. This gives leverage to the first rib and the muscles attached along the neck. Place the hand on the muscles of the neck and apply pressure to the opposite side.

(6) Vaso-motor treatment in the upper dorsal region and the superior cervical ganglion especially on the right side. Then along with this give treatment to the atlas downward on the anterior portion of the transverse processes. In some cases where the neck is tight it can be reached better by moving it outward. Get beneath the blood supply or the treatment may have another effect.

(7) Apply treatment to the ninth, tenth and eleventh cranial nerves. The best method of applying treatment is by vibration over the pharynx. The ninth nerve may be reached at vagus trunk by putting the forefinger in the mouth so as to reach the deep

muscles at the root of the tongue. To clear up tonsillitis and inflammation apply inhibition at this point.

(8) As a preventative treatment to keep it from spreading to the larynx, bronchi, nose and heart, give circulatory treatment to the lower cervical and upper dorsal regions to stir up the circulation to and from the brain, to and from the neck, to and from the mouth, to and from the teeth. This treatment is effectual if there is a diagnostic condition.

(9) Elevate the upper ribs so as to give freedom of action to the heart and lungs.

(10) Look out for development of paralysis. Give thorough circulatory treatment to keep the toxic elements from settling down, give also eliminative treatment. If there is a condition of meningitis or paralysis treatment should be applied every seven hours or oftener to keep the blood from the spine. Articulation from above downward. If the treatment cannot be applied as often, the treatment will be of no avail. Give relaxing treatment to the muscles of the spine if muscles are contracted.

(11) Stir up the splanchnic system. The object of this is to keep the toxic elements from settling in the liver and kidneys. Splanchnic area to be covered is from sixth to twelfth dorsals. Among the complications that are apt to arise when patient recovers are nephritis of the kidneys, liver, etc.

(12) Look for diarrhoea same as the treatment given in Scarlet Fever.

(13) Diet the patient same as in Scarlet Fever.

P A R O T I D I T I S

(Mumps)

Mumps is an acute infectious and contagious disease, in which there is found (1) Inflammation of the parotid gland, which (2) sometimes extends into the sub-maxillary and sub-lingual glands, predisposing cause is an obstructed condition of the salivary secretion. The origin of the condition may be due to a specific germ. The disease is found both epidemic and sporadic, occurs in children from five to fifteen years of age. The season in which the disease most commonly prevails is during the spring and fall of the year. The disease is most common in males.

Pathology. (1) Neurosis of the glands, this is followed by the morbid pathology. (2) Congestion; (3) Inflammation; and (4) Infiltration of the parotid; (5) the result being engorgement of the gland and adjacent tissues, and then pain which is due to the pressure of the swelling. The congestion and inflammation begins in the ducts of the glands. At this stage mumps can be aborted by direct treatment to the salivary glands in general which arouses action of the parotid gland in particular.

History. Mumps usually has a premonitory period which lasts one or two weeks. The disease begins with a mild temperature of about one hundred degrees and rises to one hundred and four. There is a feeling of uneasiness at the beginning, then a condition of pain behind and in front of the ear, and in about ten days there is a swelling of the glands.

The dangers of mumps are in its complications, e.g., loss of hearing, permanently, otitis media, and an involvement of the lymphatic system and sometimes an intoxication of the blood. Frequently genito-urinary diseases arise as a complication of mumps. As mumps may be had around the age of puberty, while the organs are in their primary state of development it is an easy matter why there may be development of the genito-urinary complications. There may have been cases where insanity has resulted from mumps.

Treatment. Mumps represents a lymphatic disease. There is a general disturbance of the lymphatic system by intoxication and a local affection of the glandular system. If there is a nerve supply to the lymphatic system as there is to blood supply system there is a dilatatory effect. Schaeffer says that there is an analogous nerve supply to the lymphatics corresponding to the nerve supply to the blood vessels.

(1) The first point in treatment is to abort the mumps. To abort treat lymphatics system for upper part of the body, also cerebro-spinal at seventh and third cranial nerves. Pay attention to the lymphatic system also to the C S system. Local application of dry heat is effectual, because in the majority of cases dry heat does not produce absorption. A hot water bag covered with a woolen cloth is best for it dispenses with the weight that would

be produced by sand or salt bags. Hot flannel cloths would be good if they were applied often so as to keep up the temperature. In the abortive treatment food is an important element. Do not give the patient hot food either in the form of drink or otherwise. Hot food would produce a stimulation of the parotid gland and would produce more swelling by its increased secretion.

(2) The treatment of mumps when established. -

- I. A thorough relaxation of the muscles in the cervical region, treating from the clavicle upward.
 - II. Direct treatment of the parotid gland by vibration but do not apply pressure because this serves to act as an irritant. The corda-tympani nerve should be treated on account of its control over the secretions in lymph. This nerve may be located externally by drawing a line over the angle of the jaw to the upper lip. The superior cervical ganglion should be stimulated through the upper cervical region on account of its control over the solid elements of the gland.
 - III. If the submaxillary gland is involved apply thorough treatment at the first, second and third dorsals by stimulation.
 - IV. Attend to the conditions of the atlas and axis and other lesions. Look for lateral lesions on the same side as the swelling.
 - V. Pay particular attention to the first, second and third ribs as these ribs affect the vasomotor and lymphatic side.
 - VI. Open up the excretory system, first the sweat system then the kidneys, Sweat field - lower cervical and upper dorsal, lower dorsal and upper lumbar. This is accomplished by treatment to the least splanchnics. We may reach the solar plexus by treatment at the tenth, eleventh and twelfth dorsals.
 - VII. Direct treatment to the hypogastric plexus which is located just below the umbilical region by vibration or light stimulation.
 - VIII. Articulate ribs even though there is no rib lesion.
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P E R T U S S I S

(Whooping cough).

Whooping cough is an acute infectious and very highly contagious disease. Chief characteristics are:--

(1) Paroxysmal cough, consisting of a series of long inspirations followed by a characteristic whoop or extended.

(2) Involvement of the secreting fluid, either local or general or both.

It is usually an epidemic but sometimes a sporadic disease. It is found chiefly in children over five years of age. It is considered a serious affection which sometimes proves fatal. The epidemic usually appears in the latter part of winter and spring time. It is always more or less associated with measles and scarlet fever.

Etiology. Subjects to this disease are (1) unhygienic; (2) badly nourished children and those (3) suffering from catarrhal troubles. The most common predisposing cause is catarrh. The most marked symptoms in the catarrhal type is difficult breathing through the nose. Whooping cough is a lymphatic disease. The affinity between measles and whooping cough is on account of their both being lymphatic diseases. The contagion and infection in whooping cough spreads by respiration. There is no specific germ present.

The lesions found involve the tenth cranial nerve, the recurrent laryngeal nerve, and the sympathetic nerves through the middle and upper cervical areas.

Pathology. (1) The origin of the disease is in a neurosis, modified respiration, probably due to the vasomotor disturbance if sympathetic in origin, upper dorsal 2-5. Primarily it effects the diaphragm and phrenic nerve, also tenth cranial nerve, which results in a neurosis.

(2) Sometimes it effects the trachia and bronchial glands, when the disease spreads, through the blood. In this case the lesions found are through the middle and lower cervical, and first, second and third ribs.

(3) There is no morbid anatomy unless the disease is associated with the glands by complications of bronchitis, pneumonia and asthma and other complications. The one exception of complications in whooping cough is emphysema- emphyzema. The alveola of the lungs is dilated which is a permanent dilation and the cavities become filled with air. If the proper treatment be applied there is a preservation of the lung tissue. In long standing cases of emphyzema there can be little done osteopathically.

Treatment. (1) If the disease is found in its premonitory stage treatment should be applied to the lymphatic system and stimulation of the blood of superficial circulation especially, also around the neck and throat.

(2) Often the disease has started with three stages of the

development of whooping cough - (a) Catarrhal stage. In this stage treat for a cold. (b) Congestion of the mucous membrane localized in the eyes, nose and throat. In this case treat for congestion. It is found particularly in the laryngeal portion of throat. This is dealt with as laryngeal or nasal catarrh. Treatment to the fifth nerve. Give treatment around the side of the nose, first by inhibitory pressure and then by stimulation. (c) In the spasmodic stage we have the spasms of cough consisting of a series of expirations followed by a series of inspirations and then a whoop.

(3) The normal respiratory condition gives us inspiration and a pause. In cases of whooping cough we have a series of expirations followed by a series of inspirations followed by whoop is paroxysmal. In other words there is no pause because it is eliminated in the cycle but an expiration in place of pause. Thus we can see that there is a disturbance in the entire cycle of respiration. This change in the cycle of respiration is due (a) to an irritation of the ninth and tenth cranial nerves, or to a neurosis of the recurrent laryngeal nerve, or to a neurosis of the sympathetic nerves. Lesions in cervical region. (b) Associated with the ninth and tenth cranial nerves, recurrent laryngeal and the sympathetic is vaso-motor disturbance in connection with the bronchi so that when the blood supply is interfered with there is continual irritation. In this case treatment is called for to the recurrent laryngeal nerve, first three upper ribs, especially the second and third and the vasomotors to the bronchi which are reached in the lower cervical and upper dorsal regions. Direct treatment to the last two cervical and first two dorsal vertebrae, the pneumogastric nerve will also sometimes check the paroxysm. Sometimes inhibitory pressure at the second, third and fourth dorsals, which is the vasomotor area, will check it. Lesions in the lower cervical, upper dorsal, and the first three ribs must be corrected.

(4) This represents the terminal period or stage during which convalescence takes place. The principal things to look after are the complications that may arise. Those complications to be found are hemorrhage from the mucous membrane of the nose, throat and mouth. Check from sensory side. In this case deal with the vasomotors through the whole cervical region and also the upper dorsal. In some cases this hemorrhage extends to the eyes. In this case the eyes should be treated by vibration and the application of light pressure at the second and third cervicals, also at second and third dorsals. The object of the inhibitory pressure at this point is to dilate the iris. The pupil may be reached also by inhibition at second and third dorsals which is the ciliary center for the contraction of the ciliary muscle of the eye. Complications of the kidneys must be attended. The most common complication is fatty degeneration of the liver, kidney and eye and inflammatory nephritis. This complication can be reached through the splanchnic area from sixth to twelfth dorsal.

(5) Give daily treatment directly to the vasomotors to the eyes, nose and face.

(6) Stretch the muscles of the neck. This may be best accomplished by applying pressure at the clavicle while rotating the head with the other hand.

(7) Apply pressure around the lower jaw and continue the pressure over the atlas and axis. Also apply pressure to the first and fifth cervical vertebrae, the ninth and tenth nerves and also to the phrenic nerve. Often the clavicle may produce pressure on the ninth nerve. Look to third, fourth and fifth cervicals for interference with phrenic nerve. For stimulation of upper thorax place the knee in the interscapular area and pull the thorax from the shoulder.

(8) Raise the arms over the head while applying pressure in the interscapular area.

(9) Vibration of the upper thorax from the clavicle to the second rib and apply the vibration on both sides. Direct this treatment to the bronchi to prevent bronchitis, pneumonia and emphysema.

(10) Frequently in whooping cough in connection with the paroxysm we find cyanosis, also collapse. In this case -

(a) Place patient on back if possible. Place the hand on the superior cervical ganglion on the left side and apply pressure deeply for a minute or two and then vibrate with the fingers. The object of this treatment is to control the blood. Continue the vibration to the sixth cervical vertebrae so as to cover the middle cervical ganglion;

(b) Treat the respiratory condition by placing the hand right over the scapula, first on the left side and then on the right, while pulling the arm on the same side strongly above the head. Spasm or coughing of any kind may often be checked by this treatment. The right side should be treated in the same side after the left side has been attended to;

(c) If the patient is weak or subject to fainting raise the upper ribs down to the fifth rib;

(d) Give the patient good circulatory treatment;

(e) The diet of the patient must be regulated, the clothing to be warm but not heavy, the patient kept in open air as long as possible. Give plenty of water and try to keep up strength until convalescence.

(11) In convalescence from whooping cough give general treatment to eyes, nose, throat, jaw, clavicle, rotation to arms, etc.

To check periodic spasms that arise as the patient recovers put fingers at left side of fifth rib and pull arm over the head, beginning with left arm.

D Y S E N T E R Y - Flux.

(Blood disease).

In Dysentery we have an infectious disease which may be either acute or chronic. It is a catarrhal condition of the mucous membrane or the intestinal field. In the acute form we have (a) the catarrhal condition of the mucous membrane, and (b) some irritating substance or irritation of some kind involving the nerve supply. In the chronic form there is inflammation of the small intestines. The chronic is the result or effect of an acute attack or may result from some other disease, like enteritis of the catarrhal type. There are three types of acute enteritic dysentery, viz., (1) acute catarrhal, tropical type, and (2) diphtheritic types.

(1) Acute catarrhal type. This represents one of the most infectious and epidemic of all diseases. Sometimes it is found endemic in some regions. The disease is always found in the northern and temperate climates through the summer and fall, its sequence is secondary to malaria. Some writers call it malarial dysentery. In the acute form we have (a) inflammation of a part or the whole of the large intestines; (b) coming on especially in connection with sudden changes of atmosphere and from irritation of unripe fruit or indigestible or poisonous food. In these last two cases there is nearly always an impaction of the intestine - motor nerve supply to the intestine is interfered with. For special lesions involved osteopathically, we find lateral displacements in the lumbar vertebrae. The second and third lumbers are most frequently involved which produces an interference with the intestinal mucous membrane producing congestion, inflammation, etc. Sometimes, this condition is said to be due to the use of impure water, particularly where a person has been accustomed to good pure water. The use of impure water, however, would be an exciting cause. There are two causes which predispose - intestinal dyspepsia and constipation - both implying a sluggish circulation of the blood lying bound up in a condition of stasis.

Pathology. (1) The mucous membrane is first involved in connection with the static condition of the blood, based on catarrh; (2) this results in congestion of the mucous membrane; (3) followed by persistent hyperemia and infiltration of the mucous membrane; (4) this is followed by the enlargement of the follicles which is due to the retention or overproduction of mucus which results in swelling and a secondary inflammation with (5) an exudation of the bloody serum surface of mucous membrane; (6) the glands, especially those of Lieberkneen, are enlarged, hyperemic and hypertrophic, sometimes the follicles of the glands become ruptured. When this condition is found there is an ulcerating sore established with sloughing of tissue in connection with the ulcer. The frequently sloughing and ulceration is found in patches, which, of course, they extend over the greater part of the intestine.

The foundation of pathological establishment of dysentery is a neurosis of the intestine according to which the intestine becomes sluggish in its action, the result being congestion, inflammation, etc.

History and Symptoms. The course of the disease begins with diarrhoea. (a) At first the diarrhoea is painless and exceedingly profuse almost like a choleric condition, i.e., here we have the distinctive neurosis; (b) In a short time the diarrhoea becomes painful, increasing as the pain increases. The pain is of a griping kind, visceromotor irritation, which seems to pass along the path of the colon and resembles the pain of colic very much; (c) sometimes the intestines pass into a spasmodic condition of tetanus, and this tetanus spasm may extend to the surface of the body, i.e., tetanized condition of the muscles. If found in a child it commences with a marked rigidity of the spine and convulsions; (d) among other symptoms found is a moist and coated tongue, of a dark brown color from liver. Thirst is another symptom which tends to become excessive.

We may have other symptoms, as a slight febrile temperature, nausea and vomiting, discharges of mucus -catarrh. (1) The first dysenteric discharges are of a mucus and hemorrhagic character. (2) As the discharges increase they become water, taking on a choleric character. (3) With this exception the discharges always tend to a green color, due to the bile. Sometimes there is a coffee ground stool, which is due to the disintegration of the red blood corpuscles.

Dysentery is a constitutional disease on a blood basis and is not supposed to be caused by a germ. In diarrhoea in the first stage we have a temporary increase of the peristalsis of the intestines. Among the other symptoms we have intense pain, cramping in its nature, passing down along the path of the large intestine, along with this there is the burning sensation in the rectum, the cause of this being to the irritation of the bile acids. Among the excreta we find broken down disintegrated red and white blood corpuscles. Epithelial cells indicate that the mucous membrane is disintegrated. Presence of fat cells or globules indicate that the liver is not doing its work.

The general course of the disease is eight days, varying from four to five weeks.

The tropical dysentery type - also acute, infectious and contagious, whose exciting cause is a specific germ, the amoeba coli, these are found both normal and abnormal, they burrow and intoxicate. This type is found present in the intestine and also in the excretions. Sometimes the germs embed themselves in the mucous membrane, meaning venous stasis and congestion as the foundation, stirring up ulceration and producing internal abscesses.

Pathology. Here we may find (1) Hyperemia of the mucous membrane; (2) congestion of the mucous membrane; (3) inflammation of the mucous membrane; (4) infiltration of the mucous membrane, caused by disintegration of blood, the submucous tissue oedematous

and infiltration with coagulation of blood. (5) In the sub-mucous coat we also find typical sized ulcers, caused by the burrowing of the amoeba coli. This condition is found especially in the ilium. These ulcers frequently eat into the muscular coat. The connective tissue being infiltrated it is followed by necrosis. (6) In some cases we find the formation of a false membrane, result of exudation followed by ulceration of the muscle substance of the intestine, on the surface of the mucous membrane resulting in the death of the mucous membrane and its sloughing away.

History. The onset of this type I is sudden. It generally begins slowly in a simple diarrhoea, the evacuations being very abundant and in the evacuations large numbers of the germs are found. After the diarrhoea has lasted for some time, which is at first painless then becomes painful, there is a rise of temperature and painful diarrhoea and then a gradual decrease of pain as the dysentery is established. The great danger in this type are the complications originating from the ulcerations. There are two complications: --

I. Abscesses in the intestinal wall, which are usually very small and result in perforation.

II. Abscesses in the liver. We may have an abscess in the right lobe of the liver or several small superficial abscesses in the walls of the liver. In case of these small abscesses there is a representation of necrosis of the local tissues of the liver. Sometimes there is a discharge of fatty granular matter, extending by continuity into the walls of the large intestine. Sometimes even this matter extends to the lungs, and frequently involves the diaphragm and pleural membrane and cause consumption.

The Diphtheritic Type - secondary to tropical type is the most serious and complicated of all. It comes on suddenly while the patient is seemingly healthy. The cause is said to be a vegetable germ in connection with the degeneration of food or tissue substance.

Pathology. The pathology is similar to diphtheria proper. (1) We have all of the changes found in the second type up to infiltration. (2) Following the toxic infiltration we have the disintegration of the mucous membrane substance caused by toxic conditions.

(a) In the simple type the upper portions of the intestine are covered over with a yellowish membrane. The membrane is formed by the exudation of fluid from the walls of the intestine;

(b) In the severe types there is found first of all, the swelling, congestion, and infiltration of the mucous membrane, followed by the formation of a false membrane on top of the swollen mucous membrane. The false membrane here is ~~followed~~ - formed by the congestion of the fluid following necrosis. This membrane is thick and is closely adherent to the mucous membrane. If the false membrane is separated from the mucous membrane it tears the membrane and causes hemorrhage and ulceration. The secondary types are not so dangerous as the primary.

Symptoms. The symptoms are almost the same as intestinal catarrh, with the exception of stupor and delirium due to the absorption of the toxic matter from the false membrane in the intestines. The chief complication in this type is that involving the liver. Abscesses and suppuration take place as a consequence from the passage of infection from the intestines into the liver along the portal circulation. Sometimes there is found peritonitis (toxic) as a complication, resulting from pyemia or perforation. The disease will likely prove fatal if the perforation occurs. The pus formation can be relieved by making an incision. Perforation is not necessarily fatal if an operation can be performed at once. another complication frequently following this type is paralysis. In this case this would be due to absorption of the toxic matter by the nervous system. This complication is not apt to arise if proper attention is paid to the patient.

The Chronic Type is the last type of dysentery. This form usually follows an acute type of dysentery. The pathology of the chronic type is a permanent thickening of the intestines. This thickening usually occurs especially muscular in the mucous and sub-mucous coats of the intestine. There is also a condition of abscess either on the walls of the liver or of the intestines. In this type there is a permanent obstruction to the nerve and blood supply to large intestine, hence lesions are found through lumbar and sacral regions.

Most marked lesions found are posterior conditions of the lumbar vertebrae. Sometimes there is found a lateral condition of the lumbar vertebrae to the left. Another condition is the rigidity of the muscles through the sacral region and paresis of muscles of sacrum. The reason for this is that there is a proliferation of connective tissue causing rigidity which produces a downward pressure on the sacral nerve. This condition is also found where there is an existence of tumor, i. e., thickening of the tissues over the sacrum.

Treatment. Dysentery is characteristically a blood disease, hence the most characteristic type is the catarrhal type. Foundation of the catarrh is a neurosis of the cerebro-spinal nervous system. The abortion of dysentery depends on the treatment of neurosis. Articulate the spine from above downward. The foundation of the disease is congestion and inflammation of the intestines, i. e., a vaso-motor disturbance in the umbilical field.

(1) The first treatment should be directed to the circulatory system so that there will be coordination between the superficial and deep circulations. The patient's body is usually cold which is due to the lack of coordination between the two circulations.

- (a) Inhibition along the spine downward from third dorsal;
- (b) Articulation at third, fourth and fifth dorsals, followed by
- (c) Rhythmic treatment in the same area.

(2) Pain. This is first localized in the region of the umbilicus, which indicates that the pain is localizing over the solar plexus. Treatment should be applied in the form of -

- (a) Inhibitory pressure from a point just above the umbilicus, which pressure should be continued upward and inward toward the ensiform cartilage, give deep inhibitory treatment here;
- (b) Vibratory treatment should be applied over the same region after the inhibitory pressure has been applied so that the sympathetic side of the solar plexus will be stimulated;
- (c) The local pain usually follows the path of the large intestine. To check the pains inhibitory pressure and vibration should be applied in the direction of the colon, after which the
- (d) Sensory area of the large intestines, eleventh and twelfth dorsals, should be inhibited to check pain and tendency to congestion.

(3) Give treatment to large intestines. (a) Pull up the large intestine gently from the sacro-iliac fossa, the best way to do this is to put the fingers in at the lower pit of the intestines where it comes in contact with the spine at the sigmoid flexure, and pull up on both sides slowly while taking care not to jerk for jerking acts as an excitant. Also flex the limbs;

(b) Following this go to the sacral region and apply slowly pressure on either side of the spine of the sacrum also articulate - first light and then deep pressure. Make the pressure deep enough to give a strong inhibitory effect. The object of this is to reach the sacral nerves. The sacral nerves are viscerodilators and go directly without passing through the sympathetic system.

(4) In dealing with the excessive dysentery the best way is to apply strong inhibition through the lumbar region downward. Apply the pressure as strong as it is possible to give. A good way to give it is by using the knuckles close to the spine. Begin at the lower lumbar and move upward.

(5) Attend to the correction of lesions. These are found at the third lumbar and are generally lateral subluxations to the left. Apply treatment with the patient lying on the face, articulate the vertebrae you prefer. In some cases there are posterior lesions of the sacral vertebrae, traumatic. In case of these posterior lesions the patient should lie on the table, face downward, while the limbs are taken in one arm and moved from side to side and then up and down, while you apply pressure over the sacrum with the other hand.

(6) Give direct treatment over the abdomen - (a) Inhibition from sacrum, flexion downward; (b) The rhythmic treatment.

(7) Very strong inhibitory treatment should be applied over the sacrum.

(8) Give direct treatment to the large intestine and liver. Treat the liver locally, and then direct treatment to the intestinal area of the spine. In dealing with the contracted sphincter muscles strong inhibition followed by strong stimulation over the sacral vertebrae is of avail.

(9) Constitutional treatment --

- (a) This treatment consists of relaxation of the muscles.
- (b) Vasomotor treatment to the neck and the general circulatory treatment, and
- (c) Articulating superficially in second and third types of the cervical region and first three or four dorsal vertebrae.

In the tropical and diphtheritic types we have a blood disease, and the points ~~for~~ of most importance to be looked for is a condition of anemia. This is due to disintegration of the red blood corpuscles. The first point will be to stimulate the circulation of the blood to remove the static condition. To preserve and stimulate the isotonic condition of the blood through the spleen and liver the blood in general should be treated through these organs. ACl may be given to aid this along.

(2) Deal with the diarrhoea in the last two dorsal vertebrae on the left side.

(3) Look out for a complication of abscess in the liver, lungs and spleen, and prevent by stimulating the liver through the seventh, eighth and ninth dorsals on the right side, and lungs, fourth to seventh dorsals on both sides.

(4) Strong inhibitory treatment in the lower dorsal and lumbar areas of spine. If patient is able to sit up the best way to do this is to place the knee at the dorso-lumbar area and pull the shoulders of the patient backward.

(5) Rectal dilation - object of dilation is twofold - (a) to overcome paresis of the rectum, and (b) to overcome congestion - not necessarily strong inhibition followed by strong stimulation in the sacral region.

(6) The use of the hot injection accompanied by strong stimulation of the circulation of the spleen, liver and intestine, at seventh, eighth and ninth dorsals on both sides.

(7) Strong vibratory treatment in the iliac ~~feese~~ region on both sides beginning with the right side.

In the chronic type in addition to the points already specified under the other types attend particularly to -

(a) The floating ribs. In chronic dysentery these floating ribs are generally closely packed together and sometimes underlapping. Also look to the costal cartilages around the ribs. These cartilages are either inverted or everted. Sometimes inverted on both sides or everted on one side, inverted on the other side.

(b) Look out for secondary lesions in the areas of the seventh to tenth dorsals and at lower lumbar, especially the fifth, which is either anterior or posterior. These two types of lesions are secondary to the established dysentery. The functional over-excitation of the intestine causing the displacement of the vertebrae or rigidity of the muscle.

(c) Look to third to fifth dorsal area. Sometimes there is a lesion found at this point which is either vasomotor or circulatory and especially associated with incoordination of the superficial and deep circulations.

Inhibition in splanchnic region to coordinate superficial and deep circulations, accompanied by rhythmic treatment at third and fourth dorsals, and apply heat in same region.

The starting point is a sensory disturbance of the lymphatic system being first a superficial cause and later settling down into the deeper structures of the nervous system, i.e., nerve cells.

In the chronic state there the course is long the membrane becomes thickened and adherent to the brain substance. In some parts of the brain softening and atrophy take place. The other portions of the body affected is the spleen which is sometimes abnormally enlarged, inflammation of the endocardium, bronchi, hyperemia of the liver and kidneys,

There are three forms in which the disease is found: --

- I. The first form is the abortive type. Following or accompanying exposure of a child. Apply heat or give child a very hot bath. In this case there is a sudden attack of pain, followed by localized pain in the head, a vaso-motor headache, due to vaso-constriction.
- II. This is called the mild type. Here you get the same symptoms as in type I. It comes on suddenly with chills, basal headache, vomiting, pain in the head and neck, extending down the back, full pulse, temperature 102 or 103, hyperaesthesia of the muscles of the head and back, rigidity of the muscles of the spine, convulsions in children, paralysis of the facial muscles and muscles of the eyes, mania, also constipation very marked. At this stage there is a diminution of the quantity of urine and the urine will show on examination albumin, sugar, and even presence of leucocytes. At this stage the eruption appears, first in the form of herpes, then it assumes the form of a vesicle, and later the vesicles run or flow together. The most marked characteristic of the eruption which is red and small, is the petechial spots beneath the epidemis which do not disappear under the pressure which indicates that it is hemorrhagic, i.e., running together under the skin. Sometimes this is microscopic and sometimes it is all over the body, e.g., on the chest or neck, at least you will find it along the spine.
- III. The third type is the malignant type. This type is of sudden onset with severe chills, headache and intense depression amounting to stupor and resulting in a few hours to a comatose state and a total collapse. The temperature is subnormal and weak pulse with dyspnoeic breathing becoming the Chey e-Stokes. If the patient does not sink rapidly the disease passes into the intermittent type very rapidly in which we have severe symptoms alternating with a relief usually found on alternate days. The danger here is in the complications which are peri-carditis and pneumonia. In most cases, even if the patient recovers there is left some condition like blindness, deafness, permanent chronic headache, hydrocephalus, abscess of the brain causing defective speech and mental weakness, partial or complete loss of the sense of smell and taste, paralysis, especially of the cranial nerves, and deformity of the spine.

Treatment. This is a blood disease. The condition is vasomotor so get at it first - (a) To the vasomotor system in general in upper cervical region, and (b) To the local vaso-motor system for the cerebral meninges and the lymphatics at the base of the brain. Treatment must be directed to the blood with the object of establishing a general free circulation and to coordinate the circulation of the head and trunk.

The tendency is to stasis in the meninges because the spinal blood system is the weakest of the whole blood system, hence, the predisposition of the sluggish spinal circulation is due to this.

(1) Where there is a tendency to cerebro-spinal fever it can be overcome by stirring up the spinal circulation by articulation of the spine. This will be an abortive treatment. All of the toxic diseases, such as measles, scarlet fever, etc., are liable to end in meningitis.

(2) Look out for and treat directly chills, headache and neck-ache. The most common premonitory symptom in children is convulsions, while in adults the symptom is a condition of semi-paralysis. Treatment should be directed to prevent these conditions. attempt to control the convulsions by establishing drainage from the brain. How do we drain the brain? Extension of head and neck followed by flexing head backward and at same time strong pressure of forehead and occiput. The condition of paralysis should be controlled by relaxing the muscles and establishing circulation of the blood by treatment through the cervical region to stir up the vasomotor system.

The patient should be treated every three or four hours. look after upper dorsal region to prevent eye and ear complications.

(3) Look after the condition of the eyes by examining the muscles through the dorsal region. Generally a spasmodic pain is felt, or produced, by throwing the head back. The pains extend all over the back and into the eyes, producing blindness in some instances. Deafness, blindness and photophobia are caused by the thickening of the sheathes of the nerves which is due to fluid accumulation. This fluid is found both in the cranial and spinal nerves. Sometimes the brachial plexus is involved in this way causing neuralgic pains in the arms. The nerve sheath becomes engorged with cerebro-spinal fluid and blood, and upon the coagulation of these they produce an inhibition of the nerve. The eyes are affected from a similar condition of the optic nerves. In all these cases the principal points to be attended to are the upper dorsal region by giving a relaxing treatment, also the second, third and fourth ribs.

(4) Isolate the patient to prevent infection and contagion. Keep the patient in a darkly shaded room, exercising care to keep the light subdued as much as possible and of a bluish-violet color. Above all avoid the red color and light. At this point the water is very serviceable. In the early stages of the disease very cold water applied at the base of the head is relieved. After the disease is established do not use cold water, but use dry heat at the base of the head. The hot sponge bath is of value too. After the disease is established the patient should not be allowed to drink cold water.

(5) If the patient does not respond to the manipulative side of the osteopathic treatment apply some form of blister. Any form of blister that is most convenient will answer the purpose, e.g., spanish fly, iodine, blue stone solution. Apply it strong enough and long enough to get free watery discharge.

The only way to cure is to apply one of two methods, viz.,

- (a) Promote internal absorption, or
- (b) Promote external absorption.

(6) Thorough relaxation of the muscles along the spine, beginning at the cervical region and treating downward.

(7) Treat the head of the patient. Have the patient lying on the back with the head slightly elevated above the line of the body. While standing at the head of the patient put one hand down the nape of the neck to the fourth dorsal vertebrae of the patient, and place the fingers of the other hand on the forehead of the patient. When you have done this, apply steady pressure with the first hand with the fingers on either side of the transverse process and at same time gently rotate the head of the patient, spinous process and continue upward from the dorsal region to the cervical region.

(8) Apply light extension to the dorsal region of the spine, this extension should not be too severe, the object is only to extend the ligaments of the joint.

(9) Give particular attention to the reflexes of the body, especially at the knee and the hips. Do this by flexing, rotating and extending the lower extremities.

(10) When dealing with a toxic condition a general treatment is required in addition to the specific treatment, for elimination.

(11) Vaso-motor or carotid treatment should be frequently given. To localize the venous blood, according to Musser, is to reach the jugular through the carotid.

(12) Diet. Give patient only food in liquid form and diet from the side of heat and energy. Not for nutrition, unless the cerebro-spinal fever is overcome.

Give patient after fever only tepid or warm water.

ERYSIPALAS

This disease is sometimes called St. Anthony's fire, also simple dermatitis, is either a blood or lymphatic condition, depending on how it originates and what it represents. It is an acute infectious disease which is also contagious. In this disease there is ---

- (1) A peculiar inflammatory condition of the skin, and
- (2) A localized inflammation of the sub-cutaneous tissues.

It is said to be due to a specific germ--the streptococcus erysipelatis. It is found principally in the springtime as an infectious and traumatic disease, however, it may be found at any season. The disease is associated with abrasions or any solution of the continuity of the skin. One attack of the disease gives a predisposing attack to other attacks.

Among the predisposing causes are - (1) Wounds on the head and face, especially around eyes and nose, and (2) Skin disease. (3) The disease is also found in the female sex following parturition. (4) Chronic Bright's disease, Syphilis, involving the or any form of heart disease involving the membrane, particularly pericarditis and endocarditis, are predisposing causes.

Among the lesions found are - (a) Lesions of the vaso-motor system, and (b) Lymphatic system, and (c) Cerebro-spinal lesions, which involves some particular local region, upper dorsal, e.g., the vaso-motor region for the hand, face, etc. or foot. The lesion interferes with the blood supply and leaves the local part in an imperfectly nourished condition which opens a field for toxic matters. (d) Sometimes constitutional disturbances are found with certain organs, viz., the organs of elimination, kidneys, lungs, - the inactivity of the organs producing toxic substances.

Pathology. (1) Simple localized congestion in some superficial field caused by - (a) the irritating toxin of a specific germ, (b) the toxin of trauma, traumatic infection, the lymphatic or cerebro-spinal fluid; and (2) localized inflammation in some field as congestion; (3) sometimes a localized septicaemia in another field, i.e., outside field of congestion and inflammation which affects the heart, its appendages and the pleural membrane.

History. The period of incubation is from one to eight days. It begins with a chill which is followed by an increase of temperature even to 105 or 106. If the skin is sound there may not be any marked local change at the beginning, except redness. If the skin is bruised or in a bad state of nutrition it quickly becomes reddened and surface elevated with pointed congestive spots. It usually begins in the face, the most common initial point being the nose, then spreads gradually, going over the greater part of the body. The local part that is affected is slightly elevated above the level of the surrounding skin. Sometimes the elevation is so marked as to disfigure the surrounding skin, then follows oedematous or bloated condition of the local part.

The cervical lymphatics are always enlarged. The oedematous swelling may extend to the lymphatic glands in other portions of the body. After the climax has been reached the temperature goes

down very quickly, sometimes to subnormal. The eruption comes out and the swelling disappears and there is a slight desquamation.

Nature of erysipelas. It is a constitutional disturbance caused by toxic matter, it is an attempt of nature to eliminate toxic matter from the system.

The symptoms and complications are all constitutional. They are: -- headache, delirium with convulsions in the child. The headache is vasomotor, venous and lymphatic. Sometimes the localized inflammation becomes so marked that local infiltration takes place and this may develop into suppuration and gangrene. In some cases the erysipelatous condition extends to the mucous membrane of the mouth and throat. In this case you have enlargement of the mucous membrane and sometimes the swelling becomes so great as to cause symptoms of suffocation. It may also extend to the membranes of the brain and spinal cord. In this case you have secondary meningitis of the cord. In some cases there is similar development in the mucous membrane of kidneys causing nephritis.

Treatment. Here we have in the specific type of erysipelas a blood disease and usually preceding this there is sore throat and tonsillitis, due to the swollen lymphatic condition, causing a condition of congestion of the lymph and blood pressure and the result is a reflex disturbance in the medulla, causing vaso-constriction originating in the medulla.

(1) Treat the above condition by inhibitory pressure, followed by moving pressure then stimulation to the transverse processes in the lower cervical region. If the medulla is involved treat the neck by articulation from the sub-occiput down and apply inhibitory pressure. To abort erysipelas treat the medulla directly through the upper five cervical nerves and to medulla.

(2) Secondary to this we find an oedematous condition of the eyes and upper half of face, especially one side with a tendency of the eyeball to droop down. Oedema is an accumulation of fluid. At this point give treatment to relieve congestion of the eye, and also treat the fifth nerve applying strong moving pressure from the external angular process of the eye to the angle of the jaw and down to the cervical region following the posterior border of the sterno-mastoid muscle.

(3) Attend to correction of lesions, which are first and fifth dorsals, which are subluxated. Also secondary subluxations through middle and lower cervical regions affecting eyes and face through middle and inferior cervical ganglion. Also lesions of 2. and 3. L.

(4) Treat for restlessness and insomnia by relaxation of C R downward, followed by inhibition just under superior cervical ganglion. (5) Look to condition of first and second ribs, first is frequently up and second down, here you get a lymphatic lesion.

(6) Attend to the venous obstruction by - (a) Stirring up the blood in the spinal area corresponding with the localized condition; (b) If it is in the head open the venous circulation by treatment of jugular vein and the carotid artery; (c) Open the jugular system by raising the clavicle.

(7) Treat lymphatic circulation where the ducts empty into the blood system by elevating and separating upper ribs.

(8) Treatment for coordination of blood system by rhythmic treatment in upper dorsal area.

T E T A N U S

Here we have a disease of the nervous system, and yet it is an acute infectious disease. The chief characteristics of the disease are--

1. Nervous irritability;
11. Nervous febrile temperature, very high which is not controllable,
111. Chronic muscular spasms which takes in the entire muscular system; and or part of it, and
- 1V. Heart and pulse

Etiology. The exciting cause is said to be a specific germ. The germ has not yet received a name. It generally enters the system through some traumatic injury, i.e., when the air gets to an open wound the germ gains access to the wound and thence makes its way, typical of the germ or its toxin, into the blood where it causes fermentation. Tetanus is found principally and in its greatest violence in very hot climates. It rages among the dark and black races more than in the white. The home of the disease is in East India.

The predisposing cause of tetanus is exposure to sudden changes of climate, especially those climates where moisture is found. It is said in India that a loss of wind is always followed by tetanus. Different types of tetanus ;--

- (1) Traumatic - when infection takes place through an open wound.
- (2) Idiopathic or symptomatic type - here there is no traumatism. The body becomes exposed by the poor condition of the blood and nervous system, causes a neurasthenia of the spine.
- (3) Tetanus neonatorum, - the infantile type. This type is always associated with the healing process in connection with the umbilicus.
- (4) Trismus, commonly called lockjaw. Here the side of the face is the part affected.
- (5) Cephalic tetanus. Here the external lymphatics and those of the throat are involved. There are also spasmodic movements and paralysis of the throat, associated with tubercular conditions of the glands of the neck.

Pathology. The germ is said to develop only where there is some lesion. It will not develop in the blood or organs if they are intact. (1) The starting point is the intoxication of the blood in a bruised or wounded part of the body. (2) Following this we find localized congestion, beginning with hyperemia, infiltration or (3) With a subsequent congestion of the brain and spinal cord which is the result of or reaction from muscular congestion and (4) Enlargement of the nerves and nerve cells, and (5) Development into infiltration of the nervous system.

Symptoms and History. The onset of the disease is almost always sudden beginning with (a) chill or chills and rigor which is followed by (b) stiffening of the muscles. This stiffening usually begins in the face, although it is sometimes in the tongue,

then it extends to the neck and throat, then to the spinous muscles and thence to the upper and lower extremities, beginning with the abdominal muscles. (c) In some cases the rigor is followed by a remission in which the muscles are exceedingly relaxed. (d) The rigor is always accompanied by intense pain, the pain being especially severe in the thorax producing dyspnoea breathing, which becomes paroxysmal later. The temperature rises to 110. (e) This excessive rise in temperature is followed by excessive constipation and perspiration. A high temperature is favorable in prognosis. The higher the temperature the better, because the lowering of temperature is contraindicated.

Treatment. It is a nervous disease and must be treated or aborted from the nervous side.

(1) Treat in the kidney area, viz., the middle and lower dorsals, and upper lumbar, and sacrum, i.e., through the heart.

(2) Attempt to relax muscles of patient. You will not be able to do this if you fail to control the eliminative process of the kidneys. In attempting to control the muscles apply inhibitory treatment close along the spine. The inhibitory treatment may be applied by kneading, pounding, also hot packs fomentations or anything that will stir up the muscles. In case of intense pain it may be relieved by giving strong steady pressure over the muscle.

(3) Rotary movement applied for the elevation of the ribs from second to fifth rib is a good circulatory treatment.

(4) During the spasms give strong inhibitory treatment at the upper dorsal, vasomotor, lower lumbar and sacral regions, sympathetic. In some cases lie the patient on the face and apply strong inhibitory treatment down the spine with the flat of hand.

(5) Diet. In the diet of the patient do not give any form of food which will act as an irritant or incite constipation. Give solid or dry food and do not give water. Do not have any form of red light. A green or blue light will lessen irritation. To quench the thirst and it is absolutely necessary to administer a liquid give broth or beef tea.

HYDROPHOBIA

Here is an acute not so truly infectious disease which is also contagious. It is often called Rabies. It is found primarily in the dog, the wolf and the cat, it is communicated or transmitted from these lower animals to the human subject, secondary. The disease is found primarily in the animal field and transmitted to the human field.

The general idea is that the disease is of germ origin, although the microbe has never been separated. As a matter of fact hydrophobia is not a germ disease, the germ is the product of the toxin of hydrophobia. It is due to a toxin that is found in the blood and salivary glands, probably representing a toxic secretion. The infection is not communicated through the mucous membrane. One can take the saliva or blood from a mad dog and swallow it without any results, hence the disease is not communicated through this field. The only way that infection can take place is through tissues via an abrasion of the skin and subcutaneous tissue. The parts which are the most susceptible are the head, face and hands.

Pathology. (1) Stage of intoxication, i.e., toxic inflammation or congestion into the field of circulation; (2) The marked effects that are produced through the toxic reaction taking place via cerebro-spinal system. It is followed exclusively into the cerebro-spinal system -- (a) The blood vessels are dilated; (b) exudation of serum from bloodvessels; (c) The cells are infiltrated of nerve tissue, especially the cells of the perivascular sheathes (lymph) of the choroid plexus and ventricles of brain; (d) The medulla is most frequently involved, i.e., the virus seems to center at that point and is distributed there from to the brain, spinal cord and the cranial nerves.

Other portions are also involved, secondarily to the nervous system, viz., the pharynx, oesophagus and trachia. These involvements are secondary to the nervous pathology. The foundation of pathology of hydrophobia is a neurosis of the nervous system which arises from the stagnated and intoxicated condition of the blood and lymph. The period of incubation varies materially, the minimum being 14 days and the maximum 30 days.

History. There are three marked stages in the course of the disease. --

(1) The initial stage. Here the most marked symptoms are depression, which is accompanied with headache at the base of the head and extends upward towards the cortex; sleeplessness; slight sore throat; severe stinging pains radiating all over the body from the point of infection and due to it. There is also a condition of hypersensibility, beginning at the point of the bite, extending over the body. this is followed by a semi-paresis of the throat, gradually extending to arms and trunk.

(2) The Spasmodic Type. In this stage the depression is changed into a condition of anxiety and fear and there is a severe condition

of restlessness, i.e., condition of excitability represents the deviation of the toxic condition, i.e., changes in the pathology we called effects. In this stage there is excessive hyperaesthesia, convulsions involving the larynx and mouth, dyspnoeic breathing which climaxes into spasms and respiration. These spasms are noticed particularly after the patient has partaken of water or after seeing it. Fluids are absorbed very quickly and the increased absorption increases the volume & pressure of the blood which produces the paroxysmal spasms. During this stage the temperature is raised to 103 to 104. Frequently there is a development of mania in which the patient is insane in wild frenzies. During this stage death frequently takes place.

(3) Paratic Stage. If the patient lasts to this stage he is exhausted either physically or mentally. The spasms have ceased and the patient has passed into a comatose condition. Here the heart becomes feeble, all organs weak, and the patient dies from exhaustion.

Treatment. There is no specific form of treatment in the old schools of medicine. The only form is the Pasteur treatment by inoculation with the hydrophobia virus.

One thing that can be done is to extract as much infection as is possible from the wound. Another thing is to cauterize the wound by electricity or red hot iron. Carbolic acid would be good. The method used in Russia where wolf bits are common is the application of a cantharides blister. The blister is first applied externally at the point of wound or bite after which the patient takes it internally, and after both have been used a needle is used after the blister has been removed to keep the wound open.

This same treatment is used by Dr. Still in the treatment of smallpox.

Any osteopathic treatment would be along the same lines as the osteopathic procedure in tetanus, to relax the muscles, but the circulatory treatment should be omitted because the object is to keep the infection from the system.

Treat for elimination and muscle relaxation.

The mad stone may have some efficiency in absorbing poisons from the wound, white deer-stone may be used.

Stimulate sweat, lymph and kidney centers.

- (1) Elimination.
 - (2) Muscle relaxation.
 - (3) Antidote for the poison.
-

P N E U M O N I A

Pneumonia is primarily a blood disease tending to transfer to the lymphatic field. It is an acute infectious disease also contagious to some extent, characterized by congestion, inflammation and infiltration of the pulmonary field or part of it. There are three types of pneumonia - Lobar, Bronchial and Interstitial.

I. Lobar Pneumonia is sometimes called Lung Fever. In this type we have an acute infectious and contagious disease. Writers say it is due to the micrococcus *Lanceolatus*, or the diplococcus pneumoniae of Fraenkel. This germ then present is supposed to set up a local congestion and inflammation in the lung substance. The toxin is distributed to the system in general and gives rise to chills, rigor, etc. It is more common in males than in females.

Etiology. The predisposing cause is - (a) Catarrh or catarrhal diathesis; (b) Traumatism in the chest, involving the thorax as a whole or portions of it, e.g., the ribs, intercostal muscles or a vertebrae lesions in the dorsal region from second to seventh. This is the regional vasomotor area of the lungs. The vasomotor area of the lungs in the cervical region, upper, may also be displaced, also in lower cervical area, lymphatic field. Congestion may be caused in two ways - (a) By active obstruction to the circulation of blood; (b) By lack of lymphatic flushing of the lungs. Other lesions found are excessive contractures of muscles of the chest and displacements of upper ribs, especially third, fourth, fifth. Among the predisposing causes we find alcoholism, bronchial catarrh or hay fever, Bright's disease, or in fact any disease that tends to lower the vitality or lowered or lessened circulation of blood through the lungs. One attack predisposes to another attack. The disease is found most commonly and is most fatal in the young and very old. There are three stages in the pathology:--

(1) The congestive stage. Starting point of pneumonia is pulmonary stasis depending on vasomotor disturbance that acts as a predisposing cause, moisture causes it, i.e., the line from etiology to pathology is V.M. In this stage the lung substance becomes solid and of a deep red color, the whole lung being bathed in the blood and serum. The capillaries are dilated and engorged with blood while the alveolar cells are filled with frothy fluid and especially with large masses of white and red corpuscles.

(2) Stage of red hepatization. Here the tissues become solid, affecting the whole lobe of the lung, most commonly the lower right lobe, then the lower left lobe and then the upper right lobe. It is in the upper right lobe that children are most affected, in older people lower right or left. The lobe of the lung becomes enlarged and is pressed upon by the ribs. It then becomes a brownish red color and the cells are no longer filled with air, instead they are filled with fluid, which solidifies into a fibrinous substance which causes pus formation.

(3) The stage of gray hepatization. Here the lung tissue is dense and heavy with a moist exudation on the surface while the red color is giving place to gray. The gray color represents

granular matter, due to the air cells being closely packed together and filled with blood corpuscles. This gives rise to pus formation. and-extension (4) Following this there is either an increase or extension of pus formation or resolution. If there is an increase or extension of pus formation the patient is ready to die, but if there is resolution the patient will recover.

Symptoms. Lobar pneumonia caused by toxin begins very suddenly with (1) Chill and high temperature; (2) Very acute and intense pains along the side; (3) Dry skin and flushed face; (4) Following this there is a short dry cough, sometimes bloody, sticky expectoration; (5) Full and hard pulse, with a difficult respiration, accompanied by headache, sleeplessness; (6) Constipation and sometimes epistaxis.

History. On the first day the sputum is mucoid and thick, while on the second day it is profuse liquid with small yellow masses in sputum mixed with blood, pus and broken down cells. At this stage we have scanty urine with presence of urea and uric acid. A hectic flush on the cheek is also a symptom. Cold sweating and the presence of a rash on the nose and upper lip, vomiting, dryness of the mouth, throat and stomach are all constant symptoms. In children there is convulsions and in the adult in severe cases there is delirium. Another symptom is the persistent headache. The patient tends to lie on the side affected and there is also a loss of movement on that side in the thorax. The complications are pleuritis, endocarditis and pericarditis, also nephritis, peritonitis.

Treatment. This is a blood disease with tendency to transfer to the lymphatic field. The chief point in the disease being the disturbed circulatory condition, viz.,

- (a)
- (b)
- (c) Bloody serum-like exudation in the lung tissue.

If there is nothing more than congestion there is no pneumonia, for pneumonia follows congestion. The first symptom of pneumonia is the chill or rigor, or chilly sensations passing quickly over the body.

(2) In the establishment of a pneumonia condition the first marked change functionally is a respiratory derangement which is produced by incoordination of the nervous system producing a neurosis of the lung tissue following congestion, which is the cause of pneumonia. In the early stages of pneumonia treat by applying strong inhibition in the cervical and upper dorsal areas and then follow the inhibitory treatment by strong stimulation of the muscles through the cervical and dorsal regions which serves to coordinate the nerve forces.

(3) In the second stage of development of pneumonia there is a loss of chest movement, the chest becoming immovable on the affected side. Give treatment for producing movement of the chest and ribs on the affected side and have patient lie on other side. The chest movement is begun by beginning at third rib and moving downward while applying upward pressure at angle of rib during expiration.

(4) Do not treat the heart either directly or indirectly through the diaphragm, because the right side of the heart is doing an extra amount of work and stimulation will cause a cardiac weakness.

(5) Stimulate the abdominal region through the spine in the lower dorsal, lumbar and sacral vertebrae regions. Here give rhythmic treatment.

(6) Treat the nerves that control capillaries through the vasomotor pulmonary system, by strong stimulation of the first seven dorsal vertebrae, in addition to this give strong vibration over the entire anterior thorax, paying special attention to the fourth and fifth rib field on the affected side.

(7) Attend to the correction of muscular and osseous lesions, lesions most likely to be found are -- (a) lower cervical, lymph; (b) second to seventh dorsals, blood. Give articulation in these areas whether there is a lesion or not and also apply vibration over the scapular and interscapular areas.

(8) See that the middle and lower cervical regions are relaxed thoroughly which will serve - (a) to relieve pressure or irritation on the lymphatics and (b) the recurrent laryngeal nerve, cough field.

(9) Treat the pneumogastric directly, particularly the superior laryngeal branches. Treat the cervical region as high as possible, also treat the pneumogastric along the trachea.

(10) The recurrent laryngeal nerve is sometimes irritated or obstructed - (a) by aortic dilation, to relieve this, raise the thorax as a whole; (b) congestion of the subclavian circulation. To correct this, raise the first two ribs and see that the muscles in the lower cervical region are thoroughly relaxed and apply treatment locally to the sterno-mastoid muscle to produce relaxation.

(11) There is an interference with the cycle of the heart and lungs incoordination, the pulse and heart rate are high. To coordinate these, by raising the second, third, fourth and fifth ribs on the involved side and treatment to the corresponding vertebrae.

(12) Attempt to radiate the heat from the body by physical means, e.g., sponging, with cold water which will produce a mild superficial dilation and result in a double effect - (a) relieving the lungs; (b) stimulating superficial circulation. Give superficial treatment for lungs and deep treatment to reach the heart, at second to fifth dorsal vertebrae.

(13) Do not diet patient on starchy or sugar food. The best diet is albuminous, given in liquid form. Keep patient in bed, in uniform temperature of the room. Do not have patient lie on back very long.

P Y E M I A - (Blood disease).

Pyemia is a type of blood poisoning and is an acute infectious disease caused by presence of infected pus and its distribution through the organism by the blood.

Pyemia is to be distinguished from septicemia which is an infectious and contagious disease caused by sepsis. It is always secondary, never primary, to the existence of an abscess or presence of pus. The old idea is that it was due to pus in the blood. Modern pathology, however, indicates that it is pus in the tissues, not in the blood, secondarily in the blood, the blood being medium of distribution. In most cases the disease is associated with a localized abscess condition. The infected abscess infecting the entire system. In the old idea the pus and pyemia are due to the germ. *Streptococcus Pyogenes* is the name of a new germ that the Germans have found associated with the disease.

What is pus formation? It represents the disintegration of the blood, the white blood corpuscles. Can pus be created without a pathological condition? Take and fill a hypodermic syringe with turpentine and inject its contents into the back of the hand or finger and notice the result. Pus will be formed. Then, if this is the case, we will draw the conclusion that anything that acts as a killer of white blood corpuscles produces pus. Pus can be made outside the body by taking some blood and placing it on a slide along with a solution made of morphin tablets. In a short time the corpuscles will be killed and there will be pus formation.

Pyemia is also secondary to the use of canned meat or food to which toxin have been developed, e.g., canned meats where there is an existence of ptomain. Pyemia is secondary to spoiled meat, food, i.e., overkept meat, because there is a death of tissue in the meat thus producing pyemia just the same as in the death of tissue from the blood side which was produced by morphine. Here we are dealing with a toxic condition of the blood primarily and secondary of the tissues. The

Etiology - then is solely that of intoxication. Consequently here we have to deal with - (1) The toxin generation and (2) The toxic distribution, and (3) Symptomatic developments in tissues as a result of resistance of tissues to poisoning.

Most of the pyemic conditions are produced by administration or absorption of I. Poisonous remedies or substances poisoning. The pyemic condition may also result from II. Traumatism, e.g., in wounds there is death of the white blood corpuscles which results in pus formation. This is especially the case where there is extensive laceration or tearing or where the wound is uncleansed. There are two distinctive types of pyemia:--

(1) Post-Infarction Type - The type following infarction caused by stoppage of blood. Is found most frequently with some artery or vein at some terminal point close to the brain, kidneys and liver and sometimes the spleen. The most common point of this condition is in the liver which is due to obstruction of the portal circulation with a resultant inflammatory condition. This is found following such diseases as appendicitis, peritonitis and ulcerative condition of the stomach in which the pus is being carried to the

liver and thus causing liver abscess, It is also followed by some types of peritonitis. As long as the abscess is confined to the liver it is not pyemia, but may be followed by pyemia.

(2) Metastatic Type. Is due to abscesses in connection with intermuscular or subcutaneous tissues. Some pathologists deny the existence of metastasis, change in the seat of disease from one field to another field without any known exciting cause, i.e., in rheumatism of the knee it may shift to the elbow one day and then to the leg the next day. In this condition the movement or change takes place either through the nervous system via cerebro-spinal fluid or through continuity of membrane.

There are three symptoms we find in pyemia - (1) Chills, (2) Marked febrile temperature, tending to change to sub-normal, and (3) sweating. All of these must be associated together.

Treatment - In the post-infarction type there is a pyemia of the entire nervous system. (1) Give strong vigorous circulatory treatment of the general circulation. (2) In the metastatic type circulatory treatment of the general circulation is contraindicated.

(3) In the circulatory treatment - Lower cervical, upper dorsal and lower dorsal and upper lumbar regions are the chief points to be attended to.

(4) In both types pay attention to the organs involved, the liver, kidneys and spleen. Look to eighth to tenth dorsals on right side, also for the kidneys look from tenth to twelfth dorsals and first three lumbar. Lesions affecting the kidneys are most always lateral to the right in the upper kidney area, tenth to twelfth D, and lateral to left in the lower area, first to third lumbar.

(5) Look out for secondary formation of abscesses in a localized form in some local field. Most common is the liver area. Here, as preventative treatment stimulate the liver function strongly both by local treatment of liver and spinal treatment and also pay attention to the cartilages around eighth to tenth ribs which are frequently inverted or everted.

(6) Strong stimulation of elimination via all excretory channels, e.g., if diarrhoea is present don't check.

(7) In the metastatic type there is always an involvement either of connective or membranous tissue. Here stir up the superficial circulation, third to fifth dorsals, in order to throw the pus into the superficial blood and to keep it circulating until thrown off. As an aid sweating the patient is good, e.g., vapor baths or hot sheet packs.

(8) Liberate lymphatic system and keep it circulating freely. If lymphatic glands are involved, indicated by enlargement of glands, do not apply kneading treatment to any large glands, apply vibration.

(9) Do not allow patient to drink an excess of water. The more the patients drink the more they remove the possibility of absorption. This applies not only to pyemia but also to abscesses in general. In chronic abscess condition to keep up the strength of the patient give largely an albuminous diet. That same principle applies to simple abscess or pyemia.

(10) In metastatic type give local circulatory treatment.

G O N O R R H E A

(Lymphatic disease).

Gonorrhoea is an acute manifestation of a chronic condition. It is an acute infectious and contagious disease, somewhat similar to pyemia on account of their both being suppurative diseases, i.e., systemic condition of gonorrhoea is like pyemia both tending to disintegrate the blood with the disintegration especially in the lymphoid cells or lymphatic corpuscles. With this constitutional condition the localized condition being the inflammation of the mucous membrane is secondary to a preceding suppurative condition. Some writers speak of gonorrhoea as a localized pyemia, others, as a membranous inflammation of the toxemic type.

Gonorrhoea affects the membranous tissue and that field only. The exciting cause is due to gonococcus germ. The germ is always associated with a suppurative condition or else if they pass into a state of dormancy gives us to chronic diarrhoea viz. pyemia, is bound up in a pus cell. The medical procedure is to treat it as a specific germ and as a specific disease.

The osteopathic theory of the disease is that there is a suppurative condition present which is due to the disintegrating tendency in the blood. The only antiseptics that are necessary are for cleanliness. The osteopathic treatment that would be given is general treatment to build up the general condition of patient.

The disease is always associated with the superficial epithelial cells. The gonococci is always found in pairs or double pairs. It is a peculiar germ, flattened and unlike any other germ found in the bacterial diseases. The localized seat of the disease is the urethral mucous membrane, but gonorrhoea may travel anywhere in the body and localize itself in a mucous or epithelial surface.

Secondary to gonorrhoea, among the complications we have rheumatism, especially in the knee joint on the right side either in the acute or subacute type. There is inflammation, oedema, intense pain, especially at night, and frequently a resulting ankylosis. Endocarditis is another secondary condition which takes place by infection through the blood. The brain may also become affected, cerebritis, inflammation of the brain.

Treatment. Gonorrhoea lies at the foundation of one of the conditions of previously mentioned, syphilis. Gonorrhoea as we said before is primarily a lymphatic disease, i.e., from the systemic side it represents two things --

- (1) The tendency to disintegration of the mucous membrane;
- (2) " " " " " in the lymphatic system.

From these two originate the gonorrhoeal toxin and in these two lies susceptibility to gonorrhoeal toxic action. To go back from this condition the foundation of gonorrhoea is Syphilis or the syphilitic condition of the system. Thus it represents a hereditary function when it lies in the field of the nervous system or lodges in the blood. It probably represents a tendency to disintegration or neurotic dissolution in the nerve cell field, i.e., loss of cohesive

function in the cell. The index to this syocotic condition superficially is found in the blood in relation to the cutaneous or subcutaneous structures.

Here we have the heredity element manifested by small bright red spots on the skin, these appear like little congestions on blood surface. These spots are no indication that the patient has ever had the disease. These are three stages to look out for --

- (a) Inflammatory condition;
- (b) Discharge, and
- (c) Pain.

(1) Pay attention to the lumbo-sacral region. One condition found at this point is a thickening of the soft tissues like found in a tumor. Give alternate stimulation and inhibition or rhythmic treatment here and follow by strong inhibitory treatment to check the pain, inhibiting upward along the lumbar region to ninth dorsal.

(2) Strong manipulation of the circulation along the supra-pubic and inguinal regions, followed by rotation of the lower limbs on their pelvic attachments. Give rotation, especially from within outward.

(3) Look to the kidney area for lesions, especially muscular, and give strong treatment, articulation or stimulation, in the middle and lower dorsal and middle lumbar regions; also strong treatment to the liver, also pay particular attention to the floating ribs.

(4) Give patient constitutional treatment for the nervous system and blood, by a general tonic treatment all along the spine, and to the regions of the blood through the vasomotors.

(5) Keep the heart well balanced, i.e., from the two sides of the nervous system.

(6) Attend to the hygienic and sanitary conditions of the patient. Distilled water is one of the best antiseptics, but if necessary to use anything else, dioxygen, or glycothymoline is also very good.

(6) If the toxin tends to travel up along the mucous membrane path there is only one thing to be done and that is to use methylene blue in Santal oil preparation.

SYPHILIS

pyemia and gonorrhoea are suppurative diseases, i.e., based on the disintegration of the living elements the blood or lymph. Syphilis in the bioplasmic field represents foreign bioplasmic production or reproduction. Like cancer - formation of tissue, i.e., it tends to develop a new tissue. Syphilis is a granulomatous disease, i.e., it is based on the granulation of tissue.

Syphilis is an acute and chronic infectious disease also contagious, characterized by - (1) The toxic condition of the tissue elements, i.e., constituent elements; (b) nodules on muscles, bones, glands, nervous tissue and membranes. The disease may be either acquired or hereditary. (1) In the hereditary type the basis is neurosis; (2) In the acquired, congenital, non-congenital. In the acquired type are distinct stages --

(1) The initial or chancre stage. Here the chancre may develop in one week following contagion.

(2) The stage of incubation. This stage may last from one to four months, during which the toxin and germs are developing in the organism. The symptoms here are varying - (a) inflammatory involvements in epithelial, mucous, glandular and serous structures; (b) febrile temperature, coming and going; (c) typical tonsillitis, and (d) eye symptoms.

(3) Stage of secondary symptoms, the (a) constant febrile temperature; (b) eruption of the skin; (c) ulcers in the mouth; (d) falling out of the hair; (e) condylomata, warlike growths in connection with mucous or epithelial tissue, and (f) marked retinitis.

(4) Stage of tertiary symptoms. These extend from a few months to twenty or twenty-five years, and are due to chronic inflammation. They may be found in the form of skin eruptions, cutaneous ulcers, incurable, necrosis of bone, or degeneration of certain nerves and nerve cells and softening of the brain.

Syphilis varies in different cases, indicating that some organisms are more susceptible than others, i.e., some possess greater resisting power. In some mild cases it may appear in chancre form and heal in initial stage, leaving only a weakened condition of the nervous system. In other cases typical malignant conditions follow the disease, the malignancy representing as it always does toxic bioplasmic processes. Thus malignant conditions involve or produce the destruction of tissue, e.g., the nose, soft palate and bone. The inner table of some of the cranial nerves is destroyed. The climax is with softening of the brain.

History. In a typical case six weeks following the contagion, or six weeks after the appearance of the chancre, there is found an abnormal symptomatology, general debility, febrile temperature, a characteristic eruption on the upper extremities, spreading to upper part of the trunk and also on the forehead. The latter is well marked.

The eruption begins in (a) the form of a rose colored eruption; (b) when it has developed to maturity it is called the raw ham eruption, i.e., the raw tissue condition. The reason for its being

called the raw ham eruption is because it represents a raw or a newly cut ham; (c) afterwards there is an enlargement of the lymphatic glands, especially those of the inguinal region and the cervical region along the neck; (d) another well-marked symptom is tonsillitis. If the throat is examined with a magnifying glass there will seem to be some kind of an eruption under (a) on the skin causing tonsillitis.

In the heredity type the condition is not noticeable at birth, but the disease develops within thirteen weeks.

(a) The first symptom in the child is a marked catarrhal condition of the mucous membrane producing a type of difficult breathing which is commonly called the "snuffles";

(b) The mucous membrane of the mouth and throat on examination is found to be rough and marked eruptive spots. Following this is the appearance of the eruption on the skin. This may appear in one of three forms: - (1) The pulse form; (2) Erythema or general eruption, or (3) the vesicle form.

One marked distinction between the hereditary type and the acquired type is that the eruption in the acquired type is dry and in the hereditary type moist. Sometimes in the latter there is an exudation (c) on the surface of the skin so that the child skin is always covered with a sort of whitish substance, after which the child emaciates and an anemia is established. Instead of the child growing it shrivels. At two years of age, if the child is still alive, secondary symptoms develop almost the same as in the other type. At the fifth year the tertiary symptoms begin to develop and continue until puberty.

Among the conditions found are dwarfed or decayed teeth, keratitis of the eyes, tibial nodes, -being little nodules of the tibia, deafness and commonly blindness, particularly of one eye, in the hereditary condition. Loss of mentality may also follow this, established imbecility.

Treatment - Here we have a blood disease, with the tendency to establish itself in all the tissues of the body permanently via the lymphatic and nervous systems. Chief characteristics of syphilis are -- (a) Rapidity in processes of regeneration and reproduction; (b) overgrowth of tissue as an implantation upon the already existing tissue. There are several points to be attended to-

(1) The relaxation and stretching of the muscles, especially along the spine in order to overcome and keep down anemia of the blood.

(2) Circulatory treatment applied in the four areas mentioned above.

(3) Treatment directed to equalize the forces of the body - blood, lymph and nerve force. In this treatment - (a) begin with the lymph, for it is the weakest of the three forces; (b) it depends upon the blood pressure, hence the circulation should be stirred up to increase the blood pressure. Treat at the lower cervical, upper dorsal, lower dorsal and upper lumbar vertebrae;

strong stimulation at the fourth and fifth dorsals, which is the center for the superficial circulation; then vasomotor treatment at the great vasomotor area in the upper cervical region. This should be rhythmic treatment, beginning with inhibition and then strong stimulation.

(4) Give treatment to prevent the syphilization of the brain and nervous system. This means strong inhibitory treatment in the sub-occipital region will start the cerebro-spinal fluid.

(5) The great difficulty is in connection with the complications. Among those to be prevented are - (a) blood engorgement in the prostatic region of the male, and (b) in female zoster; (d) in the spleen and in the brain.

(6) Use the cold bath freely. In beginning place the patient in tepid water bath and gradually lower the temperature of the water, or use a sponge. Give cold bath every morning.

(7) Attend to the correction of lesions generally found in the lumbar region, below the end of spinal coordination, have relation to cerebro-spinal fluid. The lesions may be either osseous, ligamentous or both. Lesions may be either anterior or posterior.

(8) To check the pain give strong inhibitory manipulation in the lumbo-sacral region to check the pain.

(9) Give eliminative treatment.

(10) Intense headache in occipito-frontal region. Deal with this by drainage from the head of the cerebro-spinal fluid.

TUBERCULOSIS

A localized infectious and contagious disease, the exciting cause of which is the bacillus tuberculosis, Koch's Bacillus. The germ is very short, slightly bent and rod-shaped. It is the most difficult of all germs to destroy, hence, it oftentimes lives outside of the body for a long time. The germ is found in dry sputum, milk and meat. In some cases it is transmitted by inoculation, e.g., from dissection, by butchers, etc. Koch says that the tuberculosis of animals is not transmitted to the human subject. In this view he practically stands alone. The disease is a granulomatous, it is both lymphatic and blood. When the germ enters the organism it produces nodules which are called tubercles. In some cases the germ is diffused through the tissues causing infiltration into the tissues the result is that these tubercles represent infiltrated patches and they pass through several pathological changes or stages.

- (1) Stage of caseation - cheesy matter.
- (2) Sclerosis, hardening, this is a drying process.
- (3) Ulceration, result of drying and dead matter accumulates.
- (4) Calcification.

Tuberculosis is found in all countries, more commonly in warm countries than in cold, also more common in the moist than in the dry climates. Altitude is said to have quite an influence on tuberculosis - higher altitudes and the lower subsurface altitudes preventing only to the extent of causing the germ to be more easily destroyed and invigorating the patient, thus giving the body a better chance to destroy the germ. The climatic conditions opposed to tuberculosis are -- purity of air, dryness of atmosphere, uniformity of climate. The disease is found very extensively in island countries, which are exposed to sea air on every side, e.g., the South Sea Islands, where tuberculosis is almost a scourge, among the British Isles Ireland is the most subjective.

Etiology. Predisposition of the disease - (a) Heredity, represents neurotic condition of the organism especially where there is a scrofulous tendency which represents a constitutional condition affecting the lymphatic system, i.e., tendency to lymphatic dissolution; (b) Acquired tuberculosis is based on some form of neurotism?

The blood and lymphatic types also the mesenteric type associated with the blood of tuberculosis follow typhoid fever, or diabetes. Lowered vitality of the patient gives a field for germ activity. The cause of this lowered vitality may be associated with specific lesions of second, third and fourth ribs, especially the second rib and the corresponding vertebrae, which produces a resultant interference with the vaso-motor disintegration through the upper portion of the lung, and also the lymphatic dissolution in the bronchi and neck regions.

Pathology. (a) In adults the principal seat of tuberculosis is in the lungs (phthisis); (b) In children growing up to puberty the most common type is the lymphatic tubercles; (c) In those who continue to grow after puberty - between puberty and adulthood - the disease is found in the joints, bones, membranes; (d) In some cases the pancreas, also the salivary glands are affected, due possibly to great demands of the system for sugar. Pancreatic tuberculosis is often diagnosed where you get the pain in the form of a burning sensation across the region of the stomach.

The most common type of tuberculosis is the Miliary Type, which begins in (a) tubercles, miliary point, the germ and toxin are imbedded in the tissue, this point becomes the center of the accumulating deposits. The accumulation occurs around the imbedded germ or toxin. This may said to be the nucleus or starting point. There are several stages:--

(1) Following this implantation cell proliferation in connection with the connective tissue and encircling the capillaries. This is produced either by the germ or toxin which acts as an irritant to the tissues. There are two kinds of cells produced in this proliferation - (a) The epithelial cell, produced first, and then (b) The giant cell. The giant cell is formed by the division of the nuclei of the epithelial cell and there is a fusion of a number of cells. In the joint and scrofulous types these giant cells are found in enormous numbers. In the epithelial type small cells are found, and very few of the giant cells exist. Giant cells multiply very rapidly, thus we can see the rapid cause of the development of tuberculosis in the hip joint.

(2) Here there is a localized inflammation resulting from the action of the germ or its toxin which causes diapedesis, i.e., an oozing of the white blood corpuscles through the vessel walls without their rupture - in the above case we mean the passage of the white blood cells. Following this there is an accumulation of leucocytes and lymphocytes, often diapedesis. The leucocytes are destroyed very quickly, but the lymphocytes are able to resist the action of the germs.

(3) It is around this field of dead leucocytes living lymphocytes, there is a connective tissue wall formed which is produced by the protoplasmic substance formation. The wall encloses and shuts in the area entirely, this area is what constitutes a tubercle. This represent the granulomatous field.

(4) This tubercle field is non-vascular, i.e., lymphatic field and it may pass through the following stages --

(a) Caseation, here there is a coagulation and necrosis always begins at the center of the area. The substance is of grayish-yellow color and may result either in softening or hardening.

(b) Sclerosis, while the central part of the tubercle field is coagulating, softening or hardening there is a hyaline formation taking place around the outer zone which changes later into a hard fibrous substance and forms a capsule around the internal mass, called encapsulation of the tubercle. When the disease has advanced to this condition the joints or parts affected should not be treated, for it is a provision of nature for isolating the toxin to prevent further progress. In some cases the toxin or

germ becomes diffused.

(5) Whenever this condition is found we find infiltration taking place. This produces a number of inflammatory processes and these inflammatory processes account for the febrile state which is associated with some types of tuberculosis.

(6) At this stage the miliary type assumes the catarrhal form. Sometimes the catarrh gives rise to suppuration, especially if it is localized in the lungs resulting in pyemia.

(7) This is what produces the rapid constitutional changes in tuberculosis. The most common condition is emaciation, accompanied with cold night sweats, which may be attributed as an attempt of nature to throw off the exudate.

There are quite a number of types of tuberculosis --

(1) Acute type - miliary tuberculosis - which is subdivided into four sub-types --

- (a) Typhoid tuberculosis;
- (b) Meningeal tuberculosis;
- (c) Pulmonary tuberculosis, phthisis;
- (d) Acute pneumonic tuberculosis. Here the pneumonic process is established by tuberculosis.

(2) The chronic type - there is only one type of pulmonary tuberculosis, phthisis, which is found classed as (3) under acute.

(3) Fibroid tuberculosis - should not be classed really typical chronic - typical fibroid.

(4) Localized tuberculosis - Here you have tuberculosis confined to a small field. This form is divided into three types --

- (a) Involving the lymphatic glands;
- (b) Involving the serous membranes;
- (c) Involving the alimentary tract, especially the mesentery.

Acute tuberculosis - The miliary type is most common and the most infectious and contagious. In some cases it affects the whole body while in other cases it affects only parts of the body. In all cases it is an acute infectious and contagious disease either acquired or hereditary.

The (a) or typhoid type is so called because of the affinity between typhoid fever and tuberculosis. The onset is gradual, followed by a period of incubation, during which we have a number of symptoms of debility, headache, loss of appetite, general debility, gradual rise in temperature, rapid and feeble pulse, rapid respiration, convulsions in child or delirium in adult, &c. Sometimes the temperature falls in the morning and rises in the evening, remitting. Typhoid state condition is the basis of development of tuberculosis.

One characteristic is an (a) enlarged spleen, with stubborn constipation; (b) Sometimes there is an intestinal hemorrhage with diarrhoea and scanty urine; (c) There is presence of albumin in the urine; (d) Excessive sweating; (e) Herpes eruption, this coming on with changes of weather, and (f) Dusky discolored skin. These symptoms go on for two or three weeks and frequently at the end of that time, and frequently terminate fatally from exhaustion.

The (b) or meningeal type. Here there is a meningitis as basis of the spinal cord. It is usually found in children from two to five years of age. It comes on as an acute attack with all the meningeal symptoms, following an old tubercular condition, either hereditary or acquired. The predisposing cause is generally an injury to the brain or to the spine. The result of traumatism. There is an exudation from the meninges into the brain or spinal cord substance, the ventricles being filled with the tubercular fluid. The cranial nerves may be also affected, in some cases these nerves are absorbed and infiltrated with some fluid. There are three stages of development --

(1) From one or two weeks of incubation during which we find chills, vomiting, febrile temperature, convulsions, intense pain in the back part of the head, excessive urination, emaciation and constipation.

(2) In two weeks more, during which the child becomes stuporous, there is persistent constipation and a rigidity of the muscles along the back, a dilation of the pupils, lowering of the temperature at a point above 100, irregular respiration, an eruption appears in the form of erythema.

(3) In this stage the stuporous condition changes to paralysis, there is a loss of mental power, persisted convulsions, the eyes still dilated, but moved upward and backward, temperature rises up to 107 permanently, while the pulse continues very rapid or else feeble. The stage continues as long as the vitality of the patient will stand it.

The (3) or pulmonary tuberculosis- Here the onset is either sudden or gradual. It usually follows some other disease, e.g., whooping cough, measles. The first marked sign is dyspnoea, along with a marked pulmonary congestion, and an expectoration of puslike or purulent material. The breathing and cough is markedly bronchial. Indicated by the bronchial rales. The temperature is about 103 or 104 while the pulse is rapid and febrile and gradually sinking all the while. Two weeks mark the termination fatally of a rapid developing case.

The (4) or Pneumonic tuberculosis - Here we have the infection of the lungs in connection with the tubercular condition either primary or secondary. In the latter case it is more frequently found among children and adults from 15 to 35 years of age. There are two distinctive forms in which this shows itself --

(a) In bronchial pneumonia which is usually found in children around puberty, between 12 and 15 years of age, about the age of puberty following measles and whooping cough. It comes on suddenly while the child is recovering from measles or whooping cough.

(1) The first marked symptom is a sudden rise in temperature during the convalescence of the patient from measles.

(2) The second symptom is a cough, which is strongly bronchial.

(3) Profuse sweating with rapid emaciation, and a hectic localized inflammatory fever. Shows itself in spots. Usually the patient sinks rapidly and death may take place in three or four weeks.

Sometimes this condition is found in adults, especially when the system is exhausted, as in neurasthenic individuals. The most marked symptom in adults is bronchial hemorrhage, congestion and infiltration.

Pathology - shows a congestion, thickening and infiltration of the inner portion of the bronchi, extending to certain areas of the lungs, especially the point where the small bronchi enters the lungs. Consolidation takes place at these points with characteristic grayish color.

The second subdivision in which the above form shows itself is in the real pneumonia, where tuberculosis shows itself in setting up a real pneumonia. This is found in the adult from 25 to 35 years of age, and is sometimes called "galloping consumption". The onset is sudden, although there has been a long period during which the patient has been on the decline.

(a) This long period is one of the devitalization, increased irritability, highly sensitiveness, in a physiological sense, i.e., to cold and heat, which indicates that the devitalization is centralized in the nervous system;

(b) The onset takes place after the period of devitalization with a sudden chill, or chill alternating with severe rigor and a sudden rise in temperature, extreme pain on one side, spasms and difficult breathing, expectoration bearing marked indications of presence of pus, ling tissue substance, also frothy matter in general. The breathing is almost entirely bronchial, it is sometimes one-sided, indicating the movement of one side and solidity of the other. There is rapid breathing, almost a panting breath, which also indicates that the vesicles are filled up with some infiltrated substance.

In the foregoing paragraphs we have considered the acute type of tuberculosis with its different sub-types - the chronic type which we have classed as (3) in acute tuberculosis and divided into two divisions, (a) and (b) and we will now pass to the third (3) and distinct type of tuberculosis known as --

Fibroid Tuberculosis - (3) - Here we have a hardening of tissue due to the typical granulations conditions proliferation and overgrowth of fibroid tissue in the lung. It sometimes follows a simple acute case of tuberculosis and in another case it follows chronic tuberculosis. It comes on without any known symptoms. The only symptom is a persistent cough with an asthmatic type of breathing. There is seldom any departure from the normal temperature, but the expectoration is characterized by the usual purulent exudate. This is not usually a fatal case type. Sometimes fatal results ensue which are caused by the heart, by reaction from fibroid condition of lungs. The conditions which produce heart failure may be either due to the development of the fibroid lung condition or secondarily to the rigidity of the thorax. The lesions are found at the second, third and fourth dorsals and the corresponding ribs, which is the upper vasomotor area for the lungs.

(4) Localized Tuberculosis. (a) This subtype is classified as that form of tuberculosis which involves the lymphatic glands. It is commonly called scrofula. This form develops gradually, being found both in children and adults. It begins with a catarrhal

inflammation affecting the mucous membranes, the catarrhal condition thus forming a field for the reception and development of germs. The lymphatic glands are susceptible because of the non-presence of the leucocytes and phagocytosis in lymphatic field. The most frequent point where lesions are found is through the upper and middle cervical region. It usually begins in the submaxillary glands. Sometimes there are clavicle lesions which involve the cervical and axillary glands, but this occurs more often in older people. There are two stages in the development of this type - (1) The stage of bloating and swelling, i.e., the suspended lymph circulation locally, and (2) the nodule formation, i.e., granulomatous condition, the peritoneum-usually involves.

(b) Tubercles of the serous membrane follow very much after the order of the lymphatic glands, the peritoneum usually involved, this being a condition of (1) swelling and bloating, followed by the (2) nodular or tubercle formation.

(c) In the alimentary the same stages are found as above, usually the mesentery.

The prognosis really depends upon the stage. It is difficult to diagnose, differentiating it from cancer. In the bloating and swelling the prognosis is good, but in the second stage not so good. The reason why these conditions prove fatal is because of the lowered vitality of the patient.

Chronic type of tuberculosis. Pulmonaris phthisis a chronic form of an acute type. Here we have the prolongation of the acute condition, especially on its pathological side. The chief point is the gradual ulceration and gradual softening of tissue. Sometimes there is a development into chronic septicaemia, and this is what the patient dies of instead of tuberculosis.

Pathology. (a) We have-the all the pathology of the acute form. The primary lesion is located slightly below the apex of the lung on its posterior and external margin. The first evidence is weakened breathing of its in the supraspinous fossa, then it extends into the bronchi and passes to the small air cells, the alveoli, which become filled with the inflammatory matter.

The next stage is the stage of caseation which is followed by ulceration, breaking down of the air cells, of the bronchial walls and formation of cavities. These cavities may be either filled with pus, or tuberculosis may become in a quiescent stage. When cavity formation occurs then we have the symptoms of sub-normal temperature and cold sweats. The state may be determined by percussion.

Sometimes pneumonia originates when the lungs have reached the above state. In other cases the cavities remain vacant or may be filled with connective tissue or fatty tissue. In these cases chronic pleurisy is present, a serous effusion being thrown out into the pleural cavity, which is sometimes hemorrhagic, other times purulent serum in its character.

Tubercle formation takes place upward in the lungs and from thence it spreads to the mouth and nose. Sometimes this involves the larynx and frequently the vocal cords, the epiglottis, and the endocardium of the heart. Vocal cord affection is very often found. When the patient is tubercular there is often loss of voice.

Secondary to these conditions we find amyloid degeneration of the spleen, kidneys and intestines. The starting point may be in a chronic gastro-intestinal condition associated with anemia or indigestion. It may also begin in a pleuritic condition or tendency. The starting point is two-fold --

The effusion and pain causing a neurosis of the lung tissue. It may also start in a malarial constitution, for the continued malarial chills and fevers establish a neurosis which results in tuberculosis. Inflammatory conditions of the trachea, the larynx and the lungs, i.e., tracheitis, laryngitis and "lung fever" if allowed to continue will produce a neurosis which results, as before, in tuberculosis.

Symptoms -The general symptoms are febrile temperature, either continued, remittent or intermittent. More commonly it begins in the continued type, later becoming remittent, when the pulmonary tissue becomes softened, in the later stages it becomes remittent when the breaking down of the lung tissue takes place. The pulse is rapid at first and gradually becomes feeble. Emaciation is also gradual, excessive sweating is also very marked, especially during the stage of cavity formation. In the fibroid type the heart is very liable to have periodic stoppages, with distinct systolic murmurs. There is a dryness of the hair and skin, dry and thirsty condition of the the mouth and throat. Periodical diarrhoea alternating with constipation or diarrhoea and albuminuria are very marked. Another point is the clubbed fingers and brittle nails.

Among the localized conditions are severe and sharp pains either at the base of the lung or right below the scapula. The cough is dry and hard, and then loose and soft, i.e., in cavity formation the purulent expectoration. The expectoration is mucoid at first, then it takes up the gray matter of caseation and finally the dilation of lung cavity substance and hemorrhage. Another particular physiological point is the flattening of the chest, and the widening out of the costal cartilages, the sternum being lowered and the forming what is called the "funnel chest" and then the scapula becomes prominent and winged. The thorax becomes narrowed from anterior to posterior, the ribs are closely bound together with the clavicles pushed upward. The lower point of the neck is very emaciated, while respiration is modified, the expiratory part being very markedly long.

Treatment. From the osteopathic standpoint the primary standpoint cause of tuberculosis is a neurosis of the lung tissue or whatever tissue is involved, with an underlying neurosis of the nerve tissue cell of fiber or both. The neurosis may be caused directly by some obstructed condition in the structure of the body in the form of muscular, osseous or ligamentous lesions.

Secondarily the neurosis may depend upon --

(a) General condition of nervous exhaustion, e.g., nervous toxæmia;

(b) Some particular form of disease involving the gastrointestinal, the blood and lymphatic systems, the local toxæmia producing a localized nerve exhaustion, with reaction of pneumogastric nerve on the pulmonary system and subordinate systems.

In pulmonary tuberculosis the pneumogastric nerve is the principal lesion. That makes tuberculosis a non-trophic or atrophic disease, i.e., nervous disease of trophic order.

In the treatment of tuberculosis we will bring in three different methods of dealing with this disease, viz.,

- (1) Natures treatment;
- (2) Hydropathic treatment;
- (3) Strictly osteopathic treatment.

I. NATURE TREATMENT. This is what is called the open air treatment of tuberculosis. This treatment was originated by Dr. Bodinton in 1840. He laid down two essential principles:--

(a) The perfect nutrition of the muscles and blood and a tissue;

(b) The absolute quiescence of the nervous system, even up to the point of blunting the nervous system. His method was to let alone the existing condition and build up the other condition. From this standpoint tuberculosis is to be regarded as a nervous disease. The highstrung condition of the nervous system representing the irritating cause of certain influences at work in the organism of a disintegrating nature. In the application of this point the first thing to take note of is the climate. It was supposed that certain climates were beneficial and others were not. Here we lay down two propositions:--

(1) The patient should be cured in the climate in which he intends to live afterwards. This is important.

(2) Any climate will satisfy the nature cure principle provided it is dry and the air is pure, i.e., eliminate moisture of climate. This means that climate will never cure tuberculosis, only acting as a palliative agent holding the disease in check while it is being treated.

The next is altitude. The principal effect is the tendency of a high altitude to increase the red blood corpuscles and to modify the blood pressure.

Another point in tuberculosis is the elimination of overcrowding, e.g., in the large cities.

DIET. All tubercular patients should have a superabundance of digestible food. The reason for this is that in this disease there is an enormous waste on account of the disintegration of previously mentioned, due to lack of nerve control. The food should be largely nitrogenous, the carbohydrate element should be up to the point of maximum to provide sufficient fuel supply for the patient. Another element of necessity is the free supply of oxygen in connection with fresh air. The oxygen treatment may be carried to the extent of pumping the oxygen into the lungs artificially.

II. HYDROPATHIC TREATMENT? The most common point of attack is the mucous membrane, i.e., with the skin or surface field. The tubercular condition does not primarily attack the blood, but attacks the mucous membranes and other tissues, secondarily the blood through the toxic effects thrown into the blood from the tissue field of degeneration. The best way to meet this condition in a general way is to utilize the hydropathic methods to stimulate superficial circulation by the use of cold bath, the cold friction rub. The object here is to use cold as stimulants to promote circulation and to force oxygenation in the lungs.

(1) Along with this osteopathic treatment should be given to stimulate the rhythmic function of the lungs, raising the first seven ribs and stimulating the corresponding areas in the spine.

(2) The second point in connection with this treatment and its application is the stimulation of the intestinal areas. Usually in tuberculosis there is gastro-intestinal toxemia produces a tendency to diarrhoea, vaso-motor, due to the toxins which irritate the mucous membrane. Flush the intestines hydro-pathically to the splanchnic area.

(3) The third point is the cough. The irritation of the cough is in the mucous membrane. The best way to overcome this irritation, or irritating cough, is to make the patient take hot and cold water alternately during the paroxysm, and also apply the cold compress to the chest. If there is a chill with cough use hot compresses.

(4) The fourth point is the headache and dizziness, and the fainting spells in connection with tuberculosis. These are caused by the periodic inhalation of gases, or irritating substances or odors in connection with the nasal mucous membranes. Odors arising from the disintegration taking place in mucous membrane. The latter causing a hypersensitiveness of the nasal areas and a hyperirritation of the olfactory system. The best way to counteract this is to wash out the nose the same as you would the stomach or intestines. A salt and water solution is good. In some cases where the nasal conditions are very bad powder salt may be used. Osteopathically treat the patient for a headache, dizziness, fainting spells the same as you would a case of nasal catarrh.

The best osteopathic treatment for a cough would be --

- (a) Treatment of the sympathetics in the cervical region and
- (b) The lymphatics in the lower cervical region;
- (c) In the distinctively catarrhal cough of tuberculosis treat the catarrh --

(1) Vaso-motor side, upper dorsal.

(2) By drainage from inner canthus along facial nerve. Deep inhibition on sides of nose to the left side of jaw.

The principle that is applied in the hydropathic treatment is the same as that applied in the nature cure treatment, i.e., to build up the vitality of the patient, i.e., to treat the patient systemically, so that the body can resist the action of toxins or germs or both. The blood is supposed to be the great healing agent and the object is to increase the quality and quantity of the blood. Here cold applications are used in different forms.

Dr. Kellogg in "Hydrotherapy Medical News". There are three points in connection with the use of cold water---

(1) The use of cold water which excites the activity of the heart, and then by reaction there is a gradual slowing down of the heart by increasing the action of the peripheral heart or the superficial circulation.

(2) Cold stimulates respiratory activity, thus increasing the amount of air taken into the lungs. The cold application here is made in the form of cold compresses, i.e., a cold sheet pack for the chest. Dr. Kellogg shows that the cold pack will give an increase of from 3 to 30 per cent of the tidal air of the lungs.

(3) There is an increased vaso-motor activity through the application of cold water in any form. The reason for this is that there is a stimulation of the activity of the sympathetic system causing the nerve centers to work in an activity along visceral lines in the development of the rhythmic action of the different organs and tissues of the body. This line of treatment hydropathically gives tonicity to the tissues and organs.

III. OSTEOPATHIC METHOD. The distinctively osteopathic treatment of tuberculosis. The foundation of tuberculosis is a neurosis of tissue, chiefly the mucous membrane. Whichever tissue is involved the nervous system is in an exhausted state, a neurasthenic condition of the nervous system, and is giving out energy without replenition of nervous system energy. Hence, the primary point in the treatment of the disease is to build up the nervous system and bring it to normal. In doing this, pay attention first of all to the lesions that are found. These are primarily in the thorax. The position of the vertebrae and ribs being gradually changed so as to bring them back to the normal. The best method of doing this is by the articulatory method. Articulate the ribs and the corresponding vertebral area in the spine to loosen muscular lesions, then loosen the muscles in the neck and in the lumbo-sacral region. The latter cuts off the connected life of the sympathetic and the result is that the sympathetic system is living by itself.

(3) Look for the disturbances involving the glands of the body. In some cases mammary gland disturbances are found, in others, salivary, while in others, alimentary. Look for the congested condition of the mucous membrane especially in the alimentary canal. The physical conditions found in tuberculosis are retraction of the supra-clavicular and infra-clavicular regions, the external scapular areas (winged scapula), resulting in the restriction of the thoracic movement, causing pain, rales, producing cavities in the lungs, abscess formation with purulent expectoration, paroxysmal cough, dyspnoea, and haemoptysis, spitting of blood. Among the common conditions found secondary to these are different forms of neuralgia, localized generally and commonly found in the interscapular area. This is the intercostal type of neuralgia. Among other lesions found are tender and congested spleen, dilated dyspeptic and neuralgic stomach, a congested and sluggish liver, constipation, soft and tender kidneys, bronchial respiration most generally, expiration being increased both in

length and intensity of tone. Functional disturbance of the heart are also found.

Treatment. (a) The gradual change of the position of the thorax to be attempted. This change takes place by beginning treatment very gently and gradually.

(b) The correction of any specific lesions found in connection with the clavicles, scapulae or vertebrae in the interscapular area, second to seventh dorsal, which is the vaso-motor area to the lungs. Give slow, gentle treatment.

(c) Symptomatic specific attention to the neuralgic condition - intercostal neuralgia very common - any malposition of organs that may be found, such as the uterus, etc. The neuralgia may be found in any portion of the body, each particular case having its own type, which may be either bronchial, pneumonic, lumbago, interstitial, facial, or occipital. Along with the neuralgia we frequently find spinal spots pains. In this case the pain is acute and cutting, indicating that it is controllable and concentrated. The treatment here would be articulation or inhibition to the spot pains.

(d) Conditions found in the marked rigidity of the abdominal muscles, sometimes there is hardening and enlargement of these muscles. Why? Because the abdominal field is getting an excess of blood. Place the patient in such a position as to produce complete relaxation of the abdomen and abdominal muscles. Stand at the right side of the patient and place one hand over the region of the sixth to eleventh ribs and vertebrae from the costal cartilages laterally, throwing the right side of your body downward while vibrating with the other hand over the top of the first hand. This vibration is directed to the spleen to cause the opening of the splenic circulation and to increase the amount of blood in the circulation. Apply the same treatment to the cervical, axillary and the inguinal glands so as to stir up the lymphatic system. The net result of this treatment will be the increase of the number of leucocytes in the blood circulating through the body.

(e) Give deep manipulative pressure over the spleen, e.g., push under the ribs, and also manipulate deeply over the iliac region downward, rotating and flexing the limbs after that.

(f) Place the patient on the face, then articulate the vertebrae in the lumbar region upward, pulling them out as far laterally as possible. Keep up the treatment until you get thorough relaxation.

(g) Stretch the spine, patient in the same position, and articulate the vertebrae through the rest of the spine downward. Never stretch the spine from the neck, but from the axilla.

(h) Give specific treatment to the pulmonary system. This consists of -- (a) The free movement of the first rib so as to stimulate the intercostal muscles, free the blood and lymph circulation; (b) Continue this movement of the ribs downward so as to increase respiratory capacity. The best way to give this is with the patient sitting up unless patient has a weak heart;

(c) Vibration over the areas that are affected, e.g., cavities that

that are being formed, consolidation areas. (d) Strong persistent vibration over the bronchi to overcome the rales. (e) Keep down all muscular contraction by frequent treatment to the muscles. Constant attendance on the patient is necessary to effect a cure.

DIET. Give the patient plenty of food, for food, proteid food, is the order of relative importance to the patient. In tuberculosis the patient should have food often. Feed the patient as a baby, five or six times every day. Water should not be used in great abundance, for water will increase the tendency toward blood disintegration. Give the patient oatmeal water, rice water or buttermilk. Sunshine, fresh air, free ventilation, graduated exercise, systematic habits of eating, sleeping, all have a tendency to assist a cure. Elimination of excitement, mental and physical work, also assist a cure.

(When you want to reach the sympathetic system so as to have it act as a tonic for the heart, or any of the viscera, begin down and go up the spine.

Whenever you want to control the cerebro-spinal side begin at the top and go down, for by beginning above the brain is reached).

Chronic Tuberculosis. The starting point as we said before, is a neurosis, and the tissue that is involved primarily is at the apex of the lung.

(1) The first thing to do in the treatment of a chronic case of tuberculosis is to relax all the muscles all over the body, especially those of the neck, which are associated with the pneumogastric nerve. Follow this by thorough stimulation in the interscapular area. This stirs up the coordination between the superficial and deep circulations. Coordinate upper and lower thoracic muscles.

(2) There is a loss of angularity in the thorax, a winged condition of the scapula, generally a hollow chest, sometimes to the extent that there is a groove along the sternum. Correct this by beginning at the sternum ribs and then attend to the scapula. Give the scapular treatment with the patient either on the side or back. If on the hand lay the hand against the lateral part of the scapula next to the spine and pull the scapula forward toward the median line from the acromian process.

(3) The next point to attend to is the separation of the ribs and the excessive relaxation of some of the intercostal spaces. This throws the clavicle into prominence, generally due to the first rib being raised. The upper part of the scapula is pulled forward producing tension at the axilla and the sternal attachment of the first rib and clavicle.

(a) To correct this begin by lowering the first rib and the clavicle. There are several ways to do this. One is, while the patient is breathing freely, at every inspiration pull down at the sternal end of the clavicle while laying the arms of the patient along the side of the body, with patient lying on back.

Another method is to stand at the head of the patient, place the finger or thumb at the head of the first rib under the clavicle. Push down on the first rib and hold down while the patient is breathing. That will relieve the intercostal tension, and will also cause the patient to expectorate. Another method is to lay the arms of the patient along the side of the body with the patient on the back, while placing your longest finger on the sternal end of the rib underneath the clavicle with the thumb right in front of the ear; then while the patient is breathing deeply, push the head from side to side while pressing at the same time on the ribs. This is the strongest method we have to lower the first rib. Following this give strong inhibitory treatment in the interscapular area in order to allay the excitement of the intercostal nerves.

(4) Another thing to be dealt with in chronic tuberculosis is stasis, this can be relieved by treatment of the splanchnic circulation.

(5) Pay attention to the condition of the heart. Here the heart is always displaced. This leaves a cavity in the thorax due to the heart being pushed forward, also upward. The strongest pulsation is perceptible at the second, third and fourth intercostal interspaces close to the sternum. Negatively in this case do not apply pressure over the sternum, positively, apply treatment to spread out the ribs. The best way is to lay the patient's arm at right angles down over the side of the table and push upward, but do not apply pressure to the sternum.

(6) Attend to the middle cervical ganglia of the sympathetic system and stimulate strongly so as to accelerate the heart's action, also stimulate the superficial circulation at the fourth and fifth dorsals. The cold bath is a good stimulant in ordinary cases, but it is contraindicated in tuberculosis.

(7) Attempt to counteract the formation of cavities in the lungs by strong stimulation of the lymphatic system by pulling the muscles forward over the transverse processes of the last three cervical vertebrae. To aid this while the patient is inspiring push the fingers between the second and third ribs and pull upward on the lower margin of the second rib so as to pull up the first and second at the same time.

(8) Deal with the pleuritic condition which is also present by strong vibration over the anterior thorax. Apply vibration in the regular way.

(9) If the patient has night sweats during the cavity formation remember that this represents pyemia and treat as you would a simple case of pyemia.

Treatment. (a) Circulatory treatment especially in the upper cervical region to reach the general vasomotors;

(b) Treatment to the lymphatic and sweat systems, especially for the upper portion of the body;

(c) Strong inhibition in the same area for the purpose of restoring the rhythmic action of these functions.

- (10) Deal with the condition of diarrhoea and albuminuria-
- (a) By irrigation of the intestinal tract. Use tepid water, not cold water;
 - (b) Strong inhibitory treatment at the eleventh and twelfth dorsals on the left side;
 - (c) Strong inhibitory treatment at the second, third and fourth lumbar on both sides.

In dealing with albuminuria treat the liver and kidneys, the one dealing with the metabolic and the other the excretory side --

- (a) Vibratory treatment to the liver, and
- (b) Rhythmic treatment to the kidneys, in the middle dorsal, lower dorsal and middle lumbar regions, which are the three great areas representing the kidneys.

(11) Correct the spinal lesions which are found in any of these areas and keep them corrected day by day.

(12) Diet and Hygiene. Here the same principles should be applied as in acute tuberculosis. Keep the patient moving about, even to the extent of having him sleep in the open air. In this disease--there is a mento-nervous condition in which the patient believes in his own mind that he is never going to die. The absolute rest cure should not be given, except for a few days, when they should get up from their bed and do some light exercise, which should be gradually increased until a normal amount of recreation is being taken.

S C R O F U L A

According to Dr. Dorland, "Scrofula is tuberculosis of the lymphatic glands, and sometimes of bones and joint surfaces, with slowly suppurating abscesses and fistulous passages, the inflamed structures being subject to a cheesy degeneration. It is essentially a disease of early life".

Scrofula is a typical tuberculosis of the lymphatic glands, but the progress of the disease is much slower than the other types of tuberculosis. This is probably because it represents a constitutional condition.

Kauzler distinguished between scrofula and tuberculosis on a two-fold basis, (a) bacilli are not commonly found in scrofula, and (b) following tissue implantation in connection with scrofula in animals the process of development is much slower than following inoculation with the regula tubercular products.

Letulle regards scrofula as a much milder form and one that shows itself externally, while tuberculosis is much more acute and has a decided preference for internal structures.

There is another affection of the lymphatic glands which is commonly called Hodgkin's Disease. This must be clearly differentiated from scrofula. To help in this differentiation, four points must be specified by contrast --

(1) Scrofula is localized in a certain group of glands, while Hodgkin's glands ~~are enlarged hypertrophied and hard, tumorous, like a nut, egg, cocconut~~. disease affects all the glands, at least when the condition is established.

(2) Scrofulous glands manifest a cheesy degeneration, while the Hodgkin's glands are enlarged, hypertrophied and hard, tumorous, like a nut, egg, cocconut.

(3) The scrofulous taint comes to the surface in other parts of the body, manifesting its presence especially in the joints, the skin, the eyes and the nose, while in Hodgkin's disease the only parts affected are the blood, the spleen, liver and the red marrow of the long bones.

(4) Hodgkin's disease affects the glands in the anterior and posterior cervical triangles, while scrofula affects the submaxillary glands and the glands accessory to these in the mouth and neck.

But all this does not satisfy us because osteopathically we must dig deep to reach the cause. The etiology of scrofula is to be traced back to the catarrhal ~~condition~~ constitution or the conditions that favor catarrhal complications. Congestive or inflammatory processes of the mucous membranes react upon the lymphatic glands, weakening their nutritive conditions making them less resistant and in this lessened vital resistance we find the origin of the adenitis in the lymph glands.

Medical writers consider scrofula as tubercular foci in localized glands, with a tendency to suppuration. The suppuration, according to some, is the result of the activity of the tubercular

bacilli and the action of their toxins upon the tissue substance. According to others, the suppuration is a direct pus infection. These tubercular foci, it is claimed, send out bacilli to the rest of the body, through the lymph or blood systems, accounting to many cases of tuberculosis.

But why is the dying condition of the gland tissue called suppuration or cheesy degeneration? This is a pathological condition due to the lessened or obstructed physiological action. Hence, this cannot be the cause. It must be a result and the death process must have a cause.

Osteopathically, therefore, we consider the lowered vitality of the tissues and the lessened vital endurance due to the interference with the nerve forces or the blood supply because an interference with the nutrition sufficient to cause the glands, the joints, or the bones to become fields for the development of the tubercular germs, represents an anti-physiological action or condition. These tubercular bacilli, are everywhere around us, in the air we breathe, in some of the food we eat, in the water we drink, etc. But unless there is a culture field for their deposit they will not lodge. Hence, germs are but an exciting cause where infection takes place. In ~~teak~~ other words, their multiplication and development are due to an effect of a previously lowered vitality, representing an unhealthy condition of the tissues and a consequently impaired nutritive condition.

How does this take place? The lymphatic circulation is closely associated with and actually dependent on the blood circulation. The great blood cause is venous stasis. This reacts --

(1) On the capillary blood vessels producing pressure on the minute terminal filaments of the nervous system, causing in turn a lethargic or inactive functioning of the nerves.

(2) On the arterial blood vessels, retarding the action of the blood in the entire systemic circulation. This results in deficient lymphatic circulation, obstruction of the return flow of the venous blood, incomplete blood purification, the intoxication of the blood and lymph fluid streams and the resultant malnutrition.

But why does this affect the glands, the joints and the bones? Because the lessened vitality is localized in these parts of the organism, on account of obstructions to and interferences with circulation, the lesions cutting off the trophic supplies to the tissues or of the lesions preventing the proper elimination of the wastes of the tissues.

But why the lymphatic glands? Because the lymph is really the field of origin of the blood, especially of the white blood corpuscles. The lymph is largely, if not altogether, vitalized by the cerebro-spinal fluid. In the scrofulous condition lessened vitality and lowered vital endurance is a condition of the nervous system. It represents a neurosis or a neurotic condition of the nervous system, in some cases congenital or hereditary in relation to the low state of the blood or the condition of

the nervous system in parents. In other cases it is acquired in connection with the injuries incident in childhood, depreciation of tissue due to children's diseases, nervous exhaustion and depletion due to prolonged sickness or direct structural tissue lesions accompanied or following any of these previous conditions.

Why does scrofula predispose to pulmonary tuberculosis? Because pulmonary tuberculosis represents a neurosis of the pulmonary nerve supply and a consequent non-trophic condition of the lung tissue. Hence, as Dr. Mays has pointed out, so many of the cases of pulmonary tuberculosis exhibit lesions of the pneumogastric nerve. Now if the lymphatic system is not in thorough working order - (1) The lungs cannot be flushed and washed out. Hence, waste deposits accumulate and these represent focal points for tubercular deposit and development. (2) The lungs are not receiving their proper trophic supplies because of the neurotic condition of the pneumogastric nerve which is the trophic nerve supply to the lungs. And as this trophic nerve supply is furnished through a lymph medium within the field of the nervous system, if there is lymphatic depreciation, there is the tendency to tuberculosis.

But why does scrofula represents a constitutional condition found chiefly in children and young adults? Why is the resisting power of the lymph lowered or weakened? Because for some reason there is a weakening of the innervation to the lymph glands. Typical lesions are found in the cervical region. In the records of ten cases we find that the most marked lesions are from third to seventh cervical, first and second dorsal, second to fourth ribs, lateral curvature with posterior or anterior displacements in the lower dorsal and the upper lumbar regions. The cervical lesions disturb the lymphatics to the lungs, bronchial and cervical glands. The rib lesions interrupt the lymphatic circulation and cut off the supply of lymph, reducing it below normal in quantity, thus interfering with the washing function of the lymph.

Localized types are found in connection with the supra-clavicular glands, the axillary glands, the bronchial and the sub-maxillary, associated with or secondary to catarrhal inflammations or congestions of the mucous membranes of the mouth, nose, throat, bronchial tubes and lungs. The mesenteric and post-peritoneal glands are associated with or secondary to catarrhal conditions. In these cases we find all the lesions that lie back of the original congestion.

Why do these conditions exist? Various reasons may be assigned.

(1) There is a vaso-motor disturbance, producing inequality in the blood supply to the mucous membrane and the lymphoid tissues.

(2) There is a condition of mal-nutrition, especially mal-assimilation, because of the inability of the nervous system to control the anabolic processes.

(3) There is a waste of the nutritive supplies, indicated by imaciation, diarrhoea conditions where the intestinal glands are involved, and febrile states, the excessive temperature being an effort of nature to burn up the refuse of the system.

It is here that unhygienic and undietetic conditions come up, bad ventilation, poor food, overcrowding, exposure, continually depreciate the system until its resisting power is so lowered that a constitutional diathesis is established.

Why in the scrofulous condition are the lymph glands so susceptible to weakening? Our theory is that a neurosis acquired or a neurotic tendency inherited reacts more upon the lymph and lymph glands than upon the blood. Why? Because the lymph is the bathing fluid of the tissues, found in the multicellular spaces in all connective tissue and in all serous cavities, including the joints and the bones. This fluid is connected in tissue canals that empty into a system of tubes radiating centripetally towards the jugular and subclavian blood system.

This fluid is the medium of nutritive exchange and also for the collection of by-products of metabolism. The lymphatics, therefore, represent a system of drainage canals and tubes, running in a bed of connective tissue, from the various tissues towards the blood. Hence, any arrest or interference with the blood reacts very strongly on the lymph. Lymph pressure originates in blood pressure and muscular tonicity.

The lymph glands are simply branching spaces, composed of adenoid tissue, extending along the pathway of the lymph vessels. These lymph glands are said to help in leucocyte formation and also to collect cell debris, to be carried off by the leucocytes. Their action is rhythmic, but as they are so minute and so numerous, the glands and muscle fibres in the lymph vessels and their valves discharging the heart function in the lymph system, an interference with the blood or muscular systems, or any weakness of the nerve action upon the lymph, blood or muscle system will react seriously on these glands.

This accounts for the large place that the lymph system, including lymph proper, and cerebro-spinal fluid, occupies in the field of disease. Mal-assimilation, secondary to neurosis, being the most probable foundation of all susceptibility to infectious and contagious diseases and of the majority of the constitutional diseases.

Add to this fact, that physiology has not yet proved that the muscle fibers in the lymphatic vessel walls are governed by direct nerve action as in the case of the vaso-motors to the blood vessels. Even if there is an innervation that governs the lymph circulation, it is certainly weaker than the blood vessel nerve control, because the lymph processes are so largely physical and dependent on the blood conditions.

This means that the lymphatic system -

- (1) Suffers from all weakness and interferences found in the blood system;
- (2) Being weaker than the blood it has a lesser resisting power and consequently becomes more readily the invasion field of germs, toxins, wastes, etc.
- (3) The lymphatic system is less independent in nutrition and more liable to suffer from malnutrition than the blood.

Another point that deserves to be noted is, that in the case of the submaxillary gland stimulation of the chorda tympani causes arterial dilation, but does not increase the lymph volume in the lymph spaces of the gland.

On the other hand an obstruction to the outflow of venous blood causes an increase of lymph in the spaces, particularly if this obstruction is caused by some condition inside the venous vessels affecting the vascular wall. This will be particularly the case where the wall of the vessel is thickened by congestion or where the connective tissue bed is enlarged or lacks rhythmic movement as in neurotic conditions.

Another point that can only be mentioned, the tissues bathed by the lymph receive their proteid supply for nutritive purposes by diffusion with the lymph through the vessel wall. This is the only way the tissue can be supplied with proteid food except by a direct epithelial exchange. The amount of proteid supplied to the tissues then depends on the quantity of lymph (volume) Proteid is the basic proximate principle of the food and in the body tissues. Hence, when there is an exaggerated proteid supply the amount of lymph must be correspondingly increased. As the supply regulates the demand, the tissues in this case will be oversupplied and hence the waste found in connection with the tissues will also be excessive.

Also the increased proteid supply will give rise to the chronic inflammation of adenoïd tissue resulting in the hypertrophy of the gland. As the growing tissues of childhood and youth are more abundantly supplied with a free lymphatic circulation, to provide for freated anabolic processes of upbuilding, there is supplied a much larger amount of proteid in the growing organism than in the adult organism. This explains the susceptibility of childhood and young adulthood to these lymphatic conditions.

What is it that accounts for the excess of lymph? An unbalance in the circulatory fluids of the body, due primarily to neurosis, or venous obstruction, or diminished capillary pressure, the direct results of the lesions we have already found to be present in this condition.

What is the treatment? Relieve the incoordination by removing the obstructing or weakening lesion, stimulating lymphatic circulatory action to prevent the stasis of the lymph, establish thorough drainage of the tissues and free the circulatory action in the superficial and deep structures and organs of the body.

As an aid to this, dietetically, the minimum of proteid food should be supplied until such time as the tissues have become fully accommodated to the coordinated circulation. Then the tissues, as they pass through a state of repair, will be able to dispose of a larger amount of proteid, taking it away from the lymphatic system, metabolizing it and building it up into the tissue substance.

As a help to the upbuilding of the nervous system, some easily assimilable oil should be used, so as to furnish the basic fat element, necessary to the nutrition of the nervous system.

Fresh air and sunlight, in fact life in the open air is an absolute necessity. We breathe the breath of life, which undoubtedly means that an overcrowding that vitiates the atmosphere, living in stuffy and badly ventilated rooms, breathing the diogenated air of other individuals, or the heated air of furnace, stove, gas range, etc., means the gradual lowering of the vital endurance beyond the point of recuperation.

Granted these conditions of nutrition, hygiene, physical exercise and the correction of all obstructive conditions in the structure and environment of the body, scrofula need have no great terror to humankind.

LEPROSY

Here we have a chronic infectious disease whose exciting cause is supposed to be the Bacillus Leprae or Bacillus Hansen. The chief characteristics of a leprous condition are --

(a) The formation of nodules, or nodular, tubercular foci in connection with the mucous membrane. The chief characteristics in the nodular or --

(b) Tubercular condition of the mucous membranes represents localized anaemia, followed by infiltration of the nerves.

(c) Then follows constitutional disturbance after the nervous system has been disturbed.

In leprosy there are five stages --

- (1) The constitutional intoxication, some claim it is a germ, others a toxin.
- (2) Mucous membrane involvement, hyperemia and intoxication, probably a secreting process, of mucous membrane.
- (3) Location changed to nervous system field, because of failure to eliminate.
- (4) Infiltration of the nervous system, especially the peripheral nerves. Here there is a second attempted elimination.
- (5) Constitutional symptoms, following the disturbances,

Having failed to be eliminated by the nervous-peripheral nerve fibers it produces a neurosis of the minute nerve terminals. This results in (a) the degenerative processes that we found in the granulomatous patches. In (b) the constitutional symptoms that are produced by reflex, back upon the organism and its organs from the peripheral nerve fiber field.

The usual method of transmission of the disease is either by heredity, i.e., neurosis, or inoculation. It is found endemic in the sandwich islands, some portions of the West Indies, Eastern India, China, Siam, and some of the Nile Valley regions of Egypt. It is epidemic in Norway. It is also found in some of the Southern Gulf states, and in Minnesota, especially among the Norwegians. There are two types:--

(1) The tubercular type, or what is sometimes called Lepra Alba. This represents a granulomatous condition of the surface of the skin involving the underlying connective tissue, the bulk of the growth being imbedded in connective tissue. There are no nodules in larynx, on the conjunctiva, or lymphatic glands. The liver and spleen are involved sometimes also the nerve fibers. It starts out and is localized in the form of an erythema. Then hyperaesthesia is developed, followed by hyperaemia, anaesthesia, in that particular portion, and the redness then gives place to a brown color, then follows the whitening of the surface. When it becomes white then it is anaesthetized. In some cases there is a tubercle formation, or better, granulomatous formation, the tubercle or granulation breaking down and causing ulceration and then a sore.

(2) Anaesthetic Type or the red type. This begins in --

- (a) Localized hyperaesthesia, followed by -
- (b) Intense pain in the limbs, followed by nodule formation -
Lepra nodule - after which we find the
- (c) Formation of minute bullae, due to the localized condition of the parts involved.
- (d) Here the peripheral nerves are involved, the pathology being thickening and infiltration.
- (e) After this the nodules appear in small blisters or bullae which burst after forming, then (1) Ulceration takes place which afterwards develops into an open sore or ulcer. The ulcer continues to discharge which finally causes a sloughing of the underlying tissue, sometimes in the ball of the fingers, nose or even the eyelids. (2) Nodule formation. The above type is sometimes called cancerous leprosy, because of the eating away of tissue that occurs. While the eating is in progress, the red color is changed to brown.

Treatment. It is generally considered that there is no treatment, this idea being handed down from antiquity. Bible history suggests different methods of cure, such as water, etc., also magic elements. The Indians use magic wands to charm away the leprosy. Dr. Kappogi is alone in dealing with leprosy. He believes it is not contagious. We visited his clinic in Vienna while traveling through Europe some time ago. His clinic is situated just across the street from Dr. Lorenze's clinic in Vienna. He has a great number of patients afflicted with leprosy and his method of treating them are entirely surgical. He does not use internal surgery. His method is that of simply curetting the involved portion of skin and mucous membrane, and gradually separating it from the surrounding tissue, and build up the deep tissue until it becomes sufficiently strong to throw off the condition. This is done by cleansing and upbuilding process, protonuclein. This is very much the same treatment as is applied by Dr. Roth in localized tuberculosis.

From the osteopathic standpoint the starting point is a neurosis, hyperaesthesia and anaesthesia. Following this there is a localized interference with --

- (a) The nervous system, followed by,
 - (b) Growth, by substitution of connective tissue.
- This of course is a matter of theory. In treatment osteopathically,
- (1) Is to emphasize the lymphatic treatment, stirring up of the lymphocytes and phagocytes.

- (2) Stimulation of the cerebro-spinal side of the lymphatic system to cause increase of the cerebro-spinal fluid. The bullae or nodules are only an outward expression of the inward condition of the lymphatic system and the effort of that function to do the work.

(3) Stirring up of the circulation of blood, especially in those regional or localized areas involved.

(4) Artificial stimulation of the nervous system, mechanically so as to prevent the peripheral nerve supply from becoming infiltrated. We are not dealing with periphery getting at the center, but the periphery.

(5) Deal with the localized portion involved, such as the fingers, toes, etc., also spinous muscle field through the nerve supply in the spine.

(6) Stimulate those organs especially concerned in the breaking up of the pigmentary substances, e.g., spleen, thyroid glands, suprarenal capsules or rather bodies. Locally, apply vibration and then vibrate over the spinal areas corresponding to the organs involved.

(7) Anaesthesia can be overcome by stimulation.

Leprosy has a close relation to blood diseases.

Treatment of the toxic condition from the side of the blood.

This is not really a blood disease but it is a disease in which the toxin of leprosy is circulated through the blood. This will require to be dealt with from the antidotal side.

G L A N D E R S

Here we have an acute infectious and contagious disease found primarily in the horse, which is sometimes communicated to the human subject. The exciting cause is said to be a germ, but the exciting cause is the atrophic state of the glandular system, i.e., it is a kind of horse equina scrofula. The chief characteristic in the disease is the nodular or tubercle formation, i.e., granulomatous disease, which involves the glands of the neck or the body. The starting point of the disease is (1) Localized neurosis in the nerve supply of the glandular system. Mumps is a similar condition. (2) Hyperemia in the gland field. (3) Hypersecretion in the local gland field. (4) Following the neurosis of the nerve supply to the gland there is a tendency to disintegration of the gland. (5) There is also involvement of the lymph glands in general, the posterior nares, also the glands of the neck.

There are two types of glanders -

(a) Glanders involving the nares, i.e., nodular or tubercular condition of the nose.

(b) Farcy, here the growth is in the form of a nodule or tubercle and is found anywhere, subcutaneous in the regional region or hoof, or may be found in the inguinal region of the animal. It may involve all the glands, even the liver. The infection and contagion take place by means of inoculation, the subject coming in contact with the discharge.

Real glanders is represented --

(1) By nodule formation, these nodules being at first hard on account of the atrophic condition of the particular membrane involved which means a process of drying. After this we have

(2) Hyperemia, hypersecretion, accumulation of white blood cells which disintegrate. The nodules break down and soften, which results in ulceration, pus formation. The principal parts involved are lymphoid, epithelioid and lymphatic cells. The nodule is a large and encysted mass with an accumulation of bacilli or toxin inside the mass or nodule.

Symptoms. The onset is (1) Sudden, the starting point locally being redness, hyperemia, hyperesthesia, followed by, (2) Swelling and inflammation, and (3) General febrile temperature, after which (4) Local hemorrhage develops then pus formation, followed by necrosis of tissue, (5) With pyemia symptoms.

Treatment. - Glanders has not come under osteopathic treatment to any extent. The special points are --

(1) Thorough treatment of the lymphatic system, both by defence against germs, and also to prevent static condition of the lymph.

(2) Give general circulatory treatment.

(3) Stimulation to the nerve supply to the local part involved, thus establishing normal trophicity of the localized tissues involved.

(4) Stimulation of the eliminative organs, especially the sweat system.

(5) Deal with temperature through the vaso-motor system.

(6) Control the chills and sweats in pyemic stage by osteopathic procedure. Do not treat the ninth dorsal, superficial circulation of heart at fourth and fifth dorsals, apply frictional treatment along the spine and be sure of patient's heart (physiologically, for the treatment may be contraindicated).

(7) Use warm sponge bath freely.

(8) Chills are due to pus formation, i.e., if the glanders are infectious.

(9) Diet the patient on solid food as much as possible.

MALARIAL FEVER

Here we have a condition to deal with in which the surface atmosphere, climate, aerial, and surface conditions have to be taken account of. Some people claim that we also have to deal with some planetary conditions. This may not be the cause, yet influenza follows planetary conditions of change. The first form to discuss is malaria, or chills and fever as it is sometimes called. Here we have an acute infectious disease, which is also contagious, at least in certain stages. The exciting cause is said to be a germ in the form of a parasite, which is known as the haematozoa of Laveran. This germ is the true form of parasite.

There are three forms in which the parasite has been found-

(1) Tertian parasite type, which is about the size of a red blood corpuscle, begins as a small hyaline amoeba embedded within the red blood corpuscle. It then subsists and grows by eating away the red blood corpuscle until it has attained the size of the corpuscle in which it started, and is then able to float about.

(2) Quartan parasite type. It is somewhat smaller than the first type and lives upon the red blood corpuscle. It is of a greenish color and has a very slight amoeboid movement.

(3) Aestival parasite type. This is a very small microscopic parasite, whose beginning is the same as the first type, i.e., it begins as a small hyaline speck. It is found solely in the superficial circulation until it has reached maturity, after which it settles down and makes its abode in the spleen and in the red marrow of the bones.

The reason why quinine is here used in medicine is because this drug has an affinity for the red blood corpuscles. When taken into the system it inoculates the red blood corpuscles and the germ is forced to take the quinine and die.

Malaria is endemic and epidemic in most tropical countries and in some of the sub-tropical countries, it is epidemic in the temperate zone, especially where moisture prevails. Is found in low beds where rivers have been and in marshy districts, also in sandy soil where there is a free water supply with an abundance of vegetable and plant growths, also found in temperate regions where the temperature is high and there is a well marked surface atmosphere made ground. The best temperature for the development is that of 65 or above with great moisture. It may be found in cities where the surface ground is artificial, i.e., where the ground is filled in as in grading.

Remittent malarial fever is the second type of malaria. In this type of the fever we have the third type of parasite which begins with the continued fever and develops in connection with the remission with periodical paroxysms, until the typical remittent fever develops? This type is found in the tropical and warm countries and in the fall and late summer seasons. Some writers call it the bilious remittent malarial fever because the liver and gastrointestinal symptoms are associated with it.

(1) Preceding the attack we find intense headache, nausea, vomiting and the onset is usually slow. It may not be associated with a chill. Where there is a chill it is not so severe as the intermittent type.

(2) Following these symptoms there is a rise of temperature to 105 or 106 and a full, bounding, i.e., high pressure of blood, pulse, pulse rate being from 100 to 130.

(3) Following the rise in temperature there is an increase in the intensity of headache, associated with vaso-motor condition, e.g., flushing of the face, pains in the limbs and vomiting, which is reflex.

(4) If these conditions present along with high temperature the patient becomes delirious on account of the rise in temperature, and there is a scanty urine with a presence of albuminous substance.

(5) Sometimes there is a hemorrhagic enlargement of the spleen or gastro-intestinal tract, with jaundice and herpes labialis.

History. This type passes through the same three stages as the other type, viz., cold, heat and sweat. The length of time occupied by the same stages as the other type lasts about six hours to twenty-four hours or multiple of these. After this the temperature falls and there is a period of remission of symptoms. This may be followed by another paroxysm and so on as long as the patient lives.

The third type is called Pernicious Malaria. This type is also associated with the aestivo-autumnal type. The most common is the hemorrhagic malaria. Here you have the weakening of the mucous membrane and the hemorrhagic effusion anywhere and everywhere over the mucous surfaces.

Among the symptoms are the (1) Chilly sensations without the chill proper, and (2) exhaustion on the part of the patient, due to the hemorrhagic condition.

The second sub-type of this pernicious malaria is called the comatose type. Here the chill is severe and followed by cerebro-spinal symptoms, delirium. The temperature is always very high and thus the skin and mucous surfaces are dry, and unless the malaria is relieved the patient will terminate very quickly.

The algid type is the third type of pernicious malaria. Here there is also a (1) Chill, (2) Great prostration of the patient, (3) Coldness, (4) Rigidity all over the surface and extremities of the body with a very high internal temperature. There is superficial rigidity, nausea, vomiting, feeble, weak, small pulse, thirst and suppression of urine.

The fourth type of pernicious malaria is called the Gastro-enteric, it is a type of typho-malaria.

Chronic Malaria is the fourth type. This condition has all of the preceding acute pathology present. It is generally due to improper treatment of some of the acute types of malaria, especially those who live in malarial regions. There are two well-marked conditions found -

(1) Well marked enlargement of the spleen, which is hard and with pathological conditions previously mentioned.

(2) Anæmia, i.e., of the blood.

Symptomatology. In the chronic type there may or may not be chills. The febrile temperature develops at intervals either with or without the chills.

(2) The surface of the skin is of a dirty yellow color, due to spleen condition - disintegration of corpuscles.

(3) The patient is generally neurasthenic, physical nervous debility, cold sweating of hands and feet, periodic jaundice, also gastro-intestinal derangement symptoms.

(4) In the latter stages we find dropsical conditions manifesting themselves in the feet, hands and face.

(5) Hemorrhages, periodically, are also found from the mucous membranes of the throat and stomach especially.

(6) The most frequent complications of malaria is neuralgia or rheumatism. The most frequent point it localizes itself in is in the supra-orbital area. Next to the is the occipital or intercostal types of neuralgia, and then, less frequently, is the sciatic. Sometimes you have other complications, e.g., chronic headache periodically, much like the periodicity of a uric acid headache.

(7) You also get aggravated constipation of a vasomotor type. Along with constipation there is another complication, chronic vomiting which is due in part to biliousness and in part to an irritation of the gastric nerve supply.

(8) Then there are either the acute or chronic types of nephritis as a complication. This is found in the chronic type following haematuria. Periodical inflammation of the spleen and pneumonia are also chronic symptoms.

(9) A chronic arthritis associated with persistent peripheral neuritis.

(10) Chronic cystitis and frequently pericystitis. This is also associated with neuritis, limited in this case to the lower extremities, is generally secondary to varicose veins, found on the left side.

Treatment. Treatment of malaria from an osteopathic standpoint is a blood disease, i.e., the blood as a tissue, main constituent of blood is tissue - white blood cells.

(1) The primary point then is the treatment of malaria by the blood treatment, especially the stimulation of the blood glands and also the lymphatic glands for the purpose of building up and strengthening the blood to a point of resistance. There are many reasons why a blood treatment is good to begin with - one is because the patient has been dosed with quinine and this should be eliminated from the body by this way if possible. In case it cannot be done it must be antidoted with an antidotal ~~et~~ medicine. Sulphanol is an antidote for quinine.

(2) Next to the stopping of the destruction of the red blood corpuscles. Their destruction has produced the predominance of pigmentation. The jaundice symptoms are the representation of this pigmentation.

To deal with this from an osteopathic standpoint -

- (a) Strong stimulation of the functional activity of the liver,
- (b) Spleen is called for, because these organs as excessory is where the destruction of the pigment takes place.

(c) Deal with the adrenals through the constrictor functions of the sympathetic. The pigment produces an irritation to the gastro-intestinal area and to

(d) Meet this use the flushing of the intestine, the gastro-intestinal bath. Use warm water.

(e) Along with this give strong stimulation to the vasomotor nerve supply, i.e., both greater and lesser splanchnic areas, to the gastro-intestinal tract. Vasomotor treatment is to cause the blood to come up to the surface.

(3) The intermittent condition. Here we deal with the chills and fever. It represents a paroxysm originating in the nervous system. It should be dealt with the same as we deal with a nerve explosion.

(a) During the cold stage vigorous stimulation should be applied by articulation, to the third and fourth dorsals, while applying strong stimulation at the same time to the thermogenic apparatus which is located in the upper cervical region. Here we have a great center located in the spinal cord and not in the brain and is not in a sympathetic ganglion.

(b) During the heat stage apply treatment of an inhibitory nature in same region.

(c) During the third stage give inhibitory treatment to the sweat system, especially for the upper part of the body. Following this strong stimulation of the thermotaxic apparatus and of the sweat apparatus. This will include two things:--

(1) A frictional or vibratory treatment all along the spine.

(2) In addition to this, remember thermotoxic is a physical process and requires some outside medium for part of the process, e.g., roll up for a minute in a woolen blanket to absorb perspiration and give patient water to drink and a bath in tepid water made slightly acid by lemon juice or vinegar.

(4) In the remittent type deal with it as you would in a continued fever. The chief point is to attempt to abort the febrile temperature through its center, i.e., strong inhibitory treatment to the thermogenic center in the upper cervical region in direct relation to the spine.

(5) In the pernicious type, direct your treatment permanently to the drainage of the venous blood from head to spinal cord. The object is to prevent the comatose stage and prevent vomiting. In the hemorrhagic form stimulate the superficial circulation strongly, and if the hemorrhage is in the alimentary canal wash out the stomach and intestines, also inhibit at the eleventh and twelfth dorsals. The object is to wash out the toxic matter which accumulates along the mucous membrane and causes the hemorrhage.

(6) In the chronic type your attention is to be directed principally to the breaking down the periodicity of the attacks. Do this by treatment of the nervous system away from the brain. Build up the patient's vitality so as to overcome physical debility. The most efficient way is to have the patient fast for physiological period, use the artificial digested food, e.g., pancreation. This is done only to save the work of the stomach, intestines and liver.

(7) Deal with the constipation through the liver and spleen, and along with this give treatment to the colon, both through the abdominal wall and by flushing the intestines with tepid water. If an antiseptic is necessary use Eucalyptus oil. Keep the patient away from the ordinary cathartic remedies. If the patient must have a cathartic give fluid cascara, licorice powder or slippery elm bark.

(8) Treat the neuralgia by giving strong inhibitory treatment to the point which corresponds with the type of neuralgia. In the occipital type give strong inhibition at the base of the occiput and along with this give extension of the neck. In the intercostal type of neuralgia give strong inhibitory treatment in the interscapular area and give the treatment for the spreading of the ribs. Sciatica is also a complication. Treat the sciatic nerve by inhibition when there is pain, and then stretch the nerve afterward.

(9) Correct the lesions that are found. Among the marked lesions that we find are of the ninth and tenth dorsal vertebrae; downward rotation of the eighth, ninth and tenth ribs, principally on the left side; and in chronic cases there is a lateral curvature on the left side in the same area.

Other lesions are found in connection with the vasomotors, upper cervical and upper and middle dorsal. In the muscles and vertebrae, lesions are found at the fourth and eleventh dorsals with often tight contractures and rigidity of the muscles. Another lesion is an enlarged and softened spleen. Treat the spleen locally by vibration and pressure downward, and follow this by a relaxing treatment in the spine at the eighth, ninth and tenth dorsals. This is an important lesion.

The spleen is the primary trouble in hyperacidity of the stomach. Deal with this by treating the spleen, instead of administering carbonate of soda.

(10) Deal with the chilliness through the vasomotors in the upper cervical region, also the upper dorsal, lower dorsal and lower lumbar regions so as to equalize the circulation. If this treatment is not sufficient, go to the superficial circulation center and stimulate strongly and at the same time inhibit at the eighth and ninth dorsals on the left side so as to reach the splenic circulation directly.

(11) Deal with excessive temperature by osteopathic procedure for lowering the temperature, or the hydropathic means to take away the heat from the body or both.

(12) Deal with the profuse sweat by strong inhibition at the superior cervical ganglion of the sympathetic system, at the same time treat the sweat areas in the spine --

- (1) By strong inhibition, and then by
- (2) By rhythmic treatment, alternate stimulation and inhibition.

(13) Give the treatment for raising the ribs. The ninth and tenth ribs are generally the seat of the lesion. They are down and pull the rest down with them. You will find those patients somewhat asthmatic. The best way to treat this is with the patient on stool by placing the fingers at the angle of the ribs and raising the arm above the head. Begin at the fourth rib and go down to the tenth. (The first second and third ribs work on their own base.)

(14) Place the patient on the back and get your fingers between the head and the angle of the ribs in the region of the tenth rib while pulling the arm of the patient above the head and giving a slight jerky movement with the other hand. This is to articulate and get effects of the articulation.

(15) Diet the patient in a simple way so as to keep work off the stomach, liver and intestines, by fasting, followed by predigested food, which should be administered per rectum.

S I M P L E C O N T I N U E D F E V E R

This is of two types - (1) Ephemeral, temporary, and the (2) True.

The only difference is the length of time during which it persists. The first type usually lasts twenty-four hours, the second type from three to ten days.

The simple continued fever is an acute infectious disease, general in type, and never resulting fatally unless there is some complication. There is no specific exciting cause, however, the general exciting cause may be an irritation of some kind in the form of gastro-intestinal disturbance, e.g., catarrhal conditions in some part of the alimentary canal. In children the frequent exciting cause is indigestion, congestion of the mucous membrane caused by contraction of cold. In adults eating of unripe or wasted food fruit, adulterated food is another cause. In some cases it is secondary to bronchitis or tonsillitis, exposure to odors or gases, sewer gas, intense heat or cold.

History. The onset is always sudden or rapid. (1) It comes on with the feeling of exhaustion, sometimes chills, will depend on coryza; (2) Intense headache; (3) Rise in pulse rate, followed by a rise in temperature to 102-103. (4) Among the other symptoms, vaso-motor in type, are flushing of the face, herpes labialis, scanty or high colored urine or even suppression of urine, especially in the extremes of cold and heat. The lesions are found in connection with the temperature apparatus, upper cervical, also lesions of chronic constipation, for toxæmia, lesions of gastritis and enteritis. Persistent nausea and vomiting, diarrhoea, are also lesions.

Treatment. Look out for the irritating cause. The most important is the gastro-intestinal involvement. In this case treat the patient to produce vomiting. Give strong stimulation to the fourth, fifth and sixth dorsal vertebrae. Here the irritation is mucous membrane and vaso- and visceric-motion. This treatment will arouse relaxation of the cardiac orifice of the stomach. If this is not sufficient apply strong stimulation to the tenth cranial nerve as it passes through the clavicle, and at the same time an irritating stimulation at the pit of the stomach. If this does not produce emesis apply strong stimulation to the tenth, along the sheath of the carotid artery on the right side, and at the same time give an upward movement in the form of an irritating pressure locally to the pyloric orifice of the stomach. In a case which we observed in England some time ago a child was given mustard and water until the stomach was apparently filled, but it was no effective. Osteopathic treatment served to empty the whole mass. In some cases, however, salt and water, or mustard and water, will serve as good emetics.

(2) Go to the splanchnic area and produce thorough relaxation, sixth to twelfth dorsals, and at the same time strongly stimulate by articulation.

(3) Pay attention to the spleen and liver. Treat them by friction and vibration, rhythmic treatment, and also at their spinal areas.

(4) Give temperature treatment to control the temperature of the patient.

(5) A continual fever as a general rule is not really a febrile condition. Now the febrile condition may be controlled by keeping the spleen and liver in control. There are four things to be familiar with --

- (a) A rise in temperature;
- (b) A reaction in function;
- (c) Suspension of nutrition,
- (d) Pathological changes in tissue.

In the above four febrile conditions omit the third, for there are no pathological changes in continued fever.

ARDENT FEVER

Here we have a non-specific febrile condition peculiar to great heat, found in very hot climates or in some types of work where labor is under high temperature. The real ardent fever condition is a disturbance of thermogenic or thermolytic apparatus, i.e., nervous disease.

We have here vaso-motor symptomatology, e.g., severe headache, with intense pulsation and throbbing in the temples and sometimes accompanied with delirium. Etiology:--

The real cause is due to --

(1) Physically absorption of heat, produced by the inability of the system to resist the absorption, I, E, we have two conditions - (a) excessive physical functioning from absorption of heat; (b) lessened physiological capacity for reacting and using heat. The real cause is in the specific heat field, is the amount of heat which a substance or body can absorb within or into its own substance. Whatever causes or cause will make the body absorb heat tends to develop ardent fever.

In the treatment treat the system so as to make it as resistant as possible to the action of heat, i.e., raise the tone of the nervous system.

The specific heat of the blood varies. The greater the velocity of the blood in the body the greater the absorption of heat, the greater the velocity of the blood the greater the resisting power. Increase the arterial blood to maximum and reduce the venous blood to a minimum, represents greater resisting power of the body. With water representing unity, we have venous blood giving .9 as its unity to the reaction of heat, while arterial blood gives 3.13 as its unity.

Treatment. (1) General stimulation to the excretory system through the skin, i.e., superficial circulation and sweat system. In case where individual has been overcome by heat promote elimination, stir up the urinary system and promote sweating. This can be done by giving the patient something hot to drink, just as hot as patient can stand it.

(2) In these cases you have to deal with diarrhoea. Do not check it, but keep it under control, by treatment of lower-cervical dorsal and lower lumbar.

(3) Stimulate the system in general. Give vasomotor treatment in the upper cervical and dorsal areas and if muscles are contracted in these areas keep them relaxed.

(4) Also give temperature apparatus treatment and keep up elimination.

(5) Keep the patient free from lesions, especially through the lumbar area. In any case give a stimulative treatment to reach the excretory function of the kidneys and the intestines.

(6) Look for toxæmic development in head, i.e., delirium. Keep up circulation from head. Pressure of the forehead and occiput, articulating neck downward.

HAY FEVER

Here we have an acute infectious fever, associated with catarrh of the respiratory passages as its basic foundation - Catarrhal diathesis is the constitutional basis.

Etiology. - The exciting cause is said to be the pollen of vegetables or flowers, e.g., weeds, rose, rag-weed and wheat grass. When pollen enters the respiratory tract it sets up an irritation of the mucous membrane. The real cause is the susceptibility of the mucous membrane to irritation, depending upon a neurosis in connection with the mucous membrane, i.e., catarrhal, or an excessive vaso-dilatory condition of the mucous membrane.

Strictly speaking there is no morbid anatomy in hay fever, consequently it is not a fever but a febrile condition and when morbid anatomy exists it is a secondary complication. This secondary complication is some form of disintegration of the mucous membrane produced by excessive vaso-dilation - caries.

Symptoms. Among these we have symptoms of catarrh, persistent sneezing, extreme itching of the eyes and nose, sometimes of the throat, excessive lacrymation, also congested and inflammatory conditions of the nasal mucous membrane, in the fields of the throat, bronchi and the smaller bronchial tubes.

(Nostrums are only palliative. They do not cure, but simply deal with the exciting cause).

Hay fever is also contagious. We saw a case of a mother and child who both had hay fever. Upon investigation we found that they both slept in the same bed. When the child was removed from the environment of hay fever the condition disappeared.

Treatment. - The symptoms are due to some form of irritation. The susceptibility to the irritation being due to a catarrhal condition in the form of neurosis in the blood field of the mucous membrane, i.e., a vasomotor neurosis. This makes hay fever primarily a blood disease through a nervous medium, viz., vasodilation of the nervous system. This gives us --

(a) The field of lesion, viz., the dilator field to mucous membrane of eyes, nose and mouth, second to fifth cervicals, also rhythmic field of vaso-motion for same areas, second to fourth dorsals;

(b) The method of treatment is to raise the resisting power of the vasomotor system and to establish the rhythmic vasomotor function, e.g., best palliative treatment in hay fever is tapping or vibration over the nostrils, the sides of cheek, nose and the temples.

(1) The first form in the treatment then is to build up the constitution in general, especially to strengthen the blood and to bring it to the point where it can resist the irritation of dust or any foreign substance.

(2) Hay fever comes on at certain periods of the year, consequently it is one of those diseases where you can at least palliate by trying to abort its cycle.

Sometimes patients go to an osteopath about the middle of August and preventative treatment is given; they think they have been cured, but they should be informed they are not, for it may return if the neurotic condition of the membrane is not entirely removed, which may be accomplished by constitutional treatment, yet it may return after all of this. The cycle may be aborted after stimulating the the blood of the patient, before the time of the cycle comes on. Keep the attack from coming on by breaking the cycle.

(3) Give a constitutional treatment to the spine, i.e., extension of the spine, or articulation of the spine, especially applied in the form of extension of the cervical and upper dorsal regions from above down.

(4) Treat the condition as one of localized catarrh involving the mucous membrane of the nasal cavity. This calls for inhibitory treatment at the supraorbital and infraorbital points; inhibitory treatment along the sides of the nose, followed by vibration in the same region, after this catch the bridge of the nose between the finger and thumb and apply strong vibration downward and inward.

(5) Treat the vasomotor nerve supply to the upper respiratory apparatus, including the bronchi and lungs. This is best done with the patient sitting on stool. Place the finger and thumb of one hand at the angle of the third rib, elevate the arm and rotate it in a circle, backward and around. Do this slowly. Apply the same treatment. Apply the same treatment to the fourth to seventh ribs. Treat the scapula in the same way. In hay fever there is great rigidity of the scapula.

(6) While the patient is expiring get your finger between the second and third ribs as close to the sternal cartilages as possible, and while the patient is inspiring, pull upward on the second rib. This will give an anterior expansion of the ~~second-rib~~ chest.

(7) One point in the treatment of hay fever is to have the patient breathe deeply, and with the upper part of the chest. If hay fever the patient should receive treatment every day, or else advise deep upward breathing. To do this expand the lungs while holding the hands over the lower ribs so as to force the air into the upper part of the lungs. This physical exercise will suffice to take the place of treatment where it is impossible to give treatment every day.

(8) Apply strong vibration to the anterior thorax so as to take the entire area of the bronchi and the lungs.

(9) Give general circulatory treatment, paying special attention to the stimulation of the superficial circulation - third, fourth and fifth dorsals.

(10) A neurasthenic patient should partake of fatty diet, if he expects to get well. Make the patient eat butter very freely, or take the emulsified form of cod liver oil. (The Nausea in cod liver oil is due to the cheapness of the preparation. The cheap preparations in the so-called emulsions are not emulsions at all, because the particles or globules are not broken up fine enough. Cod liver oil is not a great producer if it is given as the nervous system demands it. Russell's Emulsion is one of the best forms of emulsion, being from fifty to sixty per cent more than Scott's Emulsion and others. It is composed of oil of the cola nut, fat and cream. This emulsion is not so nauseating as others, owing to its form of administration. It is administered by filling a teaspoonful, or tablespoonful, which removes the nausea characteristic which emulsions generally produce.

(11) In treating the patient make the starting point of muscle relaxation and scapula. Begin with the deltoid, then the anterior muscles of the thorax. Active or passive relaxation of scapula each night before going to bed, patient sleeping on face or sides.

MALTA FEVER

Here we have an acute infectious disease, which is also said to be contagious, marked by febrile paroxysms followed by remissions, the whole attack going on from four to five weeks to six months. The exciting cause is said to be the micrococcus *Melitensis*. This disease is found most commonly among young adults, twenty to thirty-five years of age.

(1) First stage or first febrile paroxysm. There is a primary stage of incubation lasting from a few hours to four or five days, and sometimes longer.

(2) The onset following incubation is marked by headache, languor, sleeplessness, which are marked symptoms.

(3) After the disease is well established, we have febrile paroxysms marked by thirst, which is a prominent symptom, which is caused by gastro-neurosis. The hectic flush may appear anywhere on the body. Persistent diarrhoea is present. During the first two or three weeks the temperature is very high, which is followed by a remission of a few days.

Second stage or second febrile paroxysm. After the remission there is a relapse, of febrile paroxysm, time depending on period of incubation, always beginning with muscular rigor, and then there is a repetition of the previous symptoms. The symptoms following the relapse are only the preparation of a recurrent relapse. When the attack comes on we have great weakness, aggravating pains, in the lumbo-sacral region and lower limbs, night sweats, also pain in the joints almost like rheumatism.

Third stage or third febrile paroxysm, after this has gone on for a few weeks there is another remission followed by another relapse in which there is a high temperature, 106-108, extreme pains in the tendons, e.g., the knee-joint, elbow joint and also pains in the lumbo-sacral syn chondrosia, ligaments lumbago-pains, also tenderness of hands and feet, also the ligaments of the spine. Frequently the patient is left crippled. Here the field, ~~field~~, lower half of spine, arms and limbs. There is good or fair sensation but inability to use the muscles, muscular rigor persisting.

The endemic home of this disease is the Isle of Malta, but is not limited to that country now. The disease is found among soldiers and in the navy, it is sometimes found in this country.

There was a case under our observation at Kirksville some time ago, which was passing through the third stage of the disease and the patient had become practically a cripple. The case was treated for some time, but he went back to his home and the outcome is not known, although he was benefited.

Treatment. - Deal with this as you would a relapsing fever. The condition so far as known is a toxæmia of the muscles, and secondarily tendons and ligaments. That explains the muscular rigor in the second stage or paroxysm. In the first paroxysm the toxæmia seems to be systemic and if the system has the power of throwing it off the condition will not settle in the muscles. If the system on the other hand does not throw it off then it settles down in the muscles and ligaments.

(1) Try to establish a free circulation of blood.

(2) Try to correct tendinous involvement or if present correct by articulation of the joints, also the spine, especially in the lumbo-sacral region. Rotary treatment applied to the ilium is a good treatment. Rigidity found in this disease is very much like the rigidity found in the tertiary stage of syphilis.

(3) Stimulate the nervous system in a general way, that is by spinal stimulation, not the sympathetic system. Articulation treatment is excellent.

(4) Look to the diet of the patient. The patient has a ravenous appetite, which is abnormal in the extreme. In all cases food is to sustain nutrition and not appetite. Try to check the appetite.

(5) In the rotation and treatment of the ilium reach under and get to the opposite side of the patient and pull down toward the feet. There is no danger of causing a posterior displacement.

(6) Nervous condition or neurosis of the cerebro-spinal system, whatever treatment can be given to tone up the cerebro-spinal system will be helpful.

(a) Diet - phosphorised and fatty food;

(b) Hydrotherapy - alternating hot and cold water in spinal field;

(c) Osteopathic treatment - vasomotor treatment

(1) Stimulation of the sympathetics by articulation of of the heads of the ribs;

(2) Articulation of the vaso-motor area of the spine, second dorsal to second lumbar upward.

MOUNTAIN FEVER

This is a febrile temperature rather than a fever. It develops in high altitudes. There are two factors in mountain fever --

- (a) Primarily due to increase in temperature, and secondarily
- (b) To rarified air, causing an increase in respiration, and
- (c) Net result is increase in the circulation which is manifested by the rapid pulse, throbbing headache, difficult breathing, nausea and vomiting. If it continues there is epistaxis and a resultant persistent constipation. This usually lasts from three to four weeks until the patient becomes acclimated to the condition.

There is no morbid anatomy or symptomatology in mountain fever.

Treatment.

- (1) Place the patient straight out on the back with a pillow under the interscapular area, when in this position a few moments, pull the hands of the patient upward slowly over the head, and continue this slow movement upward and downward.
- (2) If epistaxis exists place the patient on the side. Begin at the seventh cervical and apply strong inhibitory pressure downward along the spine, at least to sixth dorsal, and follow this by strong rotary movement of the head.
- (3) In very severe cases of epistaxis the best way to control it is lay the patient on the side back and place something very solid at the head and upper dorsal area, and give rotary movement to the head and neck.
- (4) Apply extreme cold, by utilizing a pack, at the upper dorsal area, combined with inhibition in same area.
- (5) Rotate the head slowly on the neck of the patient if dizzy, this will remove the dizziness.
- (6) Give strong inhibition in the basi-occiput, moving head slowly antero-posteriorly, to get the cerebro-spinal fluid down from the brain. It is said that inhibition at this point will sober an intoxicated individual.
- (7) Give patient something hot in fluid form food.

WEIL'S DISEASE

Here we have an acute febrile condition, the chief characteristic of which is jaundice. It is a disease that is found in the summer time, and it predominates almost exclusively among butchers and weavers. It is a disease that is stimulated by some contact with the hair or wool found in the animal body. Some say that it is due to a germ, while some say that it is due to the odor that is given off from the wool or hair. In reality it is due to a toxin thrown off from the wool or hair. The disease comes on suddenly-

- (a) With a chill;
- (b) The temperature rising very quickly;
- (c) Intense pain in the back and limbs, and
- (d) Pain in the spinal muscles becoming almost agonizing, which is all due to the rigidity of the muscles.
- (e) After the pains ameliorate jaundice follows and sometimes there is an eruption found on the skin. This gives us the key to the treatment, viz., the toxin produces stagnation of the bile and suspension of bile elimination.

Morbid Anatomy. There is an enlargement of the liver and spleen and a condition of functional albuminuria in connection with the unstriped muscles of blood vessel walls, i.e., suspended in unstriped muscle field. Fields of involvement - (1) Liver, and spleen, (2) Kidneys; (3) Unstriped muscle. This gives us a permanent reaction in the vasomotor field, viz., exaggerated contraction. This is probably the cause of jaundice.

Treatment. Here we have a condition which primarily involves the nervous system by intoxication, causing a spasmodic condition of contracture of the nervous system, calling --

- (1) For relaxation treatment along the spine, especially in the region of the liver and spleen.
- (2) Give articulatory and rhythmic treatment to the spine.
- (3) Followed by strong inhibitory treatment from the occipital region downward to check and overcome the pain and remove the contracture.
- (4) Specific treatment of the kidneys. Albuminuria is a functional neurosis of the kidneys, thus treatment for the kidneys will be called for in three areas of the spine, corresponding with the kidneys, viz., eighth and ninth dorsals, twelfth dorsal, second and third lumbar.
 - (a) Sixth to ninth dorsals - first great center, rhythmic, secretion;
 - (b) Twelfth dorsal - vasomotor constriction, nutrition;
 - (c) Second and third lumbar - pelvis of kidney - excretion.
- (5) Rhythmic action of kidneys depend on the rhythmic action of heart and quantity of blood passing through kidneys.
 - (a) Consequently give rhythmic heart treatment, and
 - (b) Treatment to increase general circulation. Also treatment at the extremities to drive the blood in the body and the rhythmic treatment at third, fourth and fifth dorsals.

A C T I N O M Y C H O S I S

Here we have an acute infectious and contagious disease, which is found primarily in cattle and which is sometimes communicated to the human subject. The disease is sometimes known as "big jaw", "lump jaw", etc. The original or exciting cause is the ray fungus or actinomycosis. The human subject is usually affected by food, drink and the actual contact with the animal.

The disease is prevalent in the forest regions of Germany, Russia, Australia, and even in this country, where quite a number of cases have been reported, also in England and Canada?

(1) It is a granulomatous disease. The starting point in this disease following infection is often from a small granulomatous tumor, which takes place in the form of mycelium. These mycelium rays radiate in all directions from the center forming a circular region in the infiltrated part.

(2) One thing to note from the negative side, is that it will not attack the lymphatic system, lymph if normal, is a field of immunity.

(3) It usually develops by infection and contagion from some disease process, e.g., from the caries of a tooth, etc.

History of the disease.- Infection takes place through some field of disintegration, e.g., in the blood, especially blood poisoning abscess or pus formation - breaking up of tissue, i.e., disintegration of tissue structure. Following this infection, a toxic substance is communicated through the blood or through the tissue fluids. Following this we have the localization of the infection. It passes through a cycle of changes --

- (1) Local,
- (2) Systemic, and
- (3) It settles down in the jaw.

It has a special affinity for bone. In some cases where it is in the osseous system it spreads to the vertebrae. When localized in the lungs, it may spread to the liver. There is an accompanying local weakness, pain, wasting away, emaciation, rise of temperature, and fatty degeneration of such organs as the liver and spleen. When the disease is chronic it resembles tuberculosis. When the disease continues it passes into typical granulomatous conditions, a localized tumefaction sometimes extending to the brain. Tumefaction is a fatty degeneration.

Treatment. According to different writers on general practice the treatment is by surgical operation, i.e., the removal of the affected part. This is like removing the disease without removing the cause. The disease is a blood infection, the blood being intoxicated by bleed-toxin.

(1) Stimulate the blood circulation by a thorough replenishing of the blood through the blood glands, i.e., carefully reconstruction of the blood.

(2) Strong and persistent stimulation of the lymphatic system, to contribute to blood replenishing.

(3) Strong stimulation of the venous blood so as to produce thorough elimination, and thus the formation of new blood.

(4) Isolate the local form of the disease by some means of treatment that will keep the blood thoroughly ~~away~~ drained away from that field - Bier Hyperaemia.

(5) Treatment of the toxic condition.

A N T H R A X

Here we have also an acute infectious disease, sometimes said to be contagious. The disease is also found in cattle and is communicated to the human subject. It is found in an endemic condition in the forest countries. The disease is said to be caused by the bacillus Anthrax. This bacillus is the most virulent of all germs. It can be boiled and still survive the boiling, or it may be placed in an incubator and not destroy its vitality. The infiltration takes place through an open wound and sometimes by a sting or bite from a horse-fly which has been in contact with an infected animal. Sometimes the infection takes place through the wool or hide of the animal. The anthrax disease is a toxic disease. The system becomes poisoned to such an extent that after death the body becomes rigid and decomposes rapidly. The blood of those infected becomes excessively venous. This is due to a toxic destruction of the arterial blood, preventing normal reconstructing process.

Among the other organs affected are the spleen and liver, which are greatly enlarged and there is enlargement of the other organs. Where the case does not result fatally hemorrhages will be found. Sometimes hemorrhages into the brain are found, also all the symptoms of a brain hemorrhage manifest themselves -- paralysis.

In the development of the anthrax poisoning there are two forms assuming. This depends on the condition of the body.

Malignant or Pustular is the first type. - The surface point of exposure is the hand, arm or face.

(a) It begins in a small papule, then the papule becomes a vesicle filled with serum or blood, and then intense inflammation of the vesicle and the entire surrounding tissue takes place. There is a hardening (enduration) which is followed by a new crop of papules.

(b) After these oedematous conditions are developed, especially in the regions of the lymphatic glands, which sometimes become enlarged.

(c) In favorable cases the swelling gradually goes down and scars are formed where pustules have been formed. In unfavorable cases the oedema goes on until it has taken in the whole body, the patient usually dying from oedematous heart conditions. We saw a case of anthrax which went through all the stages. When patient died there was nothing left but the skeleton and skin. When the subject was opened up nothing but a dark colored fluid was found.

The second type is found in the stomach and intestines, the infection taking place by eating of flesh or drinking of milk from the animal which has the disease. This type begins in chilliness and is followed by nausea, vomiting and then diarrhoea, internal abdominal pains, enlarged spleen.

When the disease has spread to the nervous system spasms and convulsions occur. This type is usually fatal because infection takes place from the inside and results in perforation.

Treatment. - The external type is treated surgically by the extirpation of the carbuncle. Sometimes it is treated by the cautery.

Osteopathically the (1) thing to do would be circulatory treatment to replenish the blood. There is a tendency of the arterial blood turning into venous. - This is a blood disease and a breaking down of the red blood corpuscles.

(2) Keep away from the lymphatic system, for this disease is just the opposite from Actinomycosis.

(3) Treat muscles and soft tissues to keep up elimination.

(4) Give the patient plenty of water to drink and diet predigested food. Even injection of predigested food substance into the tissues, in order to compel assimilation.

CONSTITUTIONAL DISEASES

RHEUMATISM

Rheumatism is a systemic reaction resulting from some particular or localized part of the body. There are several types --

(1) Acute type, called articular rheumatism, or rheumatic fever. Here we have an acute disease of a febrile, but no-contagious character. In some cases this acute rheumatism is due to infection. The principal characteristics are --

(1) Multiple or simple arthritis, involving a single or a number of joints, and

(2) A secondary tendency to settle down in the region of the heart, or in the tendinous structures of the body.

There is no germ associated with the disease. The disease predominates usually in the spring of the year and usually in temperate climates.

Etiology. - The real cause of the disease is an interference with the normal action of some of the nerve centers of the body. Irritations. - The interference is produced by intoxications, irrit'd by changes in the weather, cold or damp weather, and particularly sudden changes. The real underlying cause of intoxication is a defective state of metabolism in connection with -

(1) Nitrogenous food elements. Instead of urea being formed in proper proportions for elimination, an acid is formed such as uric acid and lactic acid. This acid accumulation in the system acts as an irritation to the nerve centers.

(2) Carbohydrate metabolism and deficient lactic or sarcolactic acid present.

Pathology. - (1) This disease is really a non-trophic one, resulting in production of morbid substances and these substances causing the pain. In some cases rheumatism is hereditary, the nervous system being weakened so that the low state of vitality gives rise to the defective metabolism. The disease is not transmitted by the parent, but the predisposition is.

(2) Actual changes taking place based on the non-trophic conditions are the most common changes that are found common to all types of rheumatism --

(1) Hyperemia involving the mucous or synovial membranes.

(2) The fluid accumulates and becomes fibrinous, i.e., coagulates. In rheumatism the blood usually has an excess of fibrin. There is also an excess of acid

(3) There is also an excess of acid, a diminished alkalinity.

(4) And sometimes there is a throwing out of the leucocytes of the blood onto the surface of the mucous or synovial membranes. This is what produces abscesses, this is also the basis of the false ankylosis.

Symptoms. - Premonitory rheumatic fever is usually --

- (1) Preceded by pains in the joints, pain is first diffused and then localized when the temperature rises;
- (2) Chilliness and a slight rise in temperature.

The rheumatic fever comes on suddenly. The temperature reaches to 103 or 104. The pain is localized in the lower joints. Other symptoms are - very rapid pulse, profuse sweating, scanty urine, extremely aggravated constipation, swelling and hardening of the joints, hardening and reddening of the muscles also swelling, and a very marked anaemia of the blood.

The complications of rheumatic fever are:--

First and greatest, an excessive temperature, reaching up to 110, which causes extreme prostration. Other complications are - heart diseases of all kinds, pleurisy, pneumonia, spinal meningitis, which often cripples the patient for life, and fibrinous nodules in muscles, bones, tendons, especially around the elbow joint, yet they are often around the scapula and even extend in some cases to the spine of the vertebrae.

Rheumatic fever is to be distinguished from (1) Septic fever. Here there is a suppurative condition which is absent in rheumatism fever.

(2) Rheumatic fever is also to be distinguished from gout or gouty fever. Gout is usually found late in life, rheumatic fever is found earlier and gout is always localized in the foot and in connection with one particular toe, especially the second toe.

(3) It is also to be distinguished from gonorrhoeal rheumatism. The latter is found only in the knee joint and most generally in one knee joint, sometimes spreading to hip joint.

(4) Rheumatic fever is also to be distinguished from rheumatoid arthritis, which only affects the small joints.

(5) Chronic Articular Rheumatism. - Here we have a chronic inflammatory condition with swelling of the joint. It usually follows a preceding acute or sub-acute form of the disease. It develops slowly and settles down with a permanent change in the structure of the joint. It is found principally among those who are exposed to the extremes of weather, especially cold and damp weather. The disease also predominates among the poorer classes who are subject to deficient nutrition. It is also found among those who have reached or have passed maturity, i.e., over 45 years of age. Sometimes, however it is found hereditary. In the chronic type there is always found some structural lesions, depending upon the part that is involved.

Pathology. (1), (2), (3), (4) the same as in the acute form.

(5) The ligaments of the sheaths, of tendons and of the scapula around the joint, thickening of these structures.

(6) In some cases the muscles around the joint are atrophied, and sometimes there is an eating into the cartilage and ligament. This either retards the movement of the joint or prevents its movement entirely, thus causing a deformity. The two points that are principally involved are the shoulder and hip joints. Some writers claim it is not so, but records hold up to the above statement.

Symptoms. - The most marked symptoms associated with this condition are --

- (1) Pain is always worse on movement of the joint.
- (2) In addition to the stiffness of the joint it gradually becomes stiffer and immovable.
- (3) Swelling of the joint is another symptom.
- (4) Tenderness and redness, indicating hyperaemia. This condition sometimes produces an acute rheumatic fever, which is a manifestation of a chronic condition.
- (5) In the general chronic condition there is no febrile temperature, the health of the patient being good in general.
- (6) As the chronic condition develops arterial degeneration follows so that we have a condition of arterial sclerosis.
- (7) This created a tendency to chronic inflammatory conditions of the arterial system and leads up to chronic endocarditis. This may go on for a long time and may not be discovered until post mortem.
- (8) Another symptom is the weak compressible pulse along with low rate of pulsation. This must be differentiated from the heart rate, for we will find that they often vary.

(3) Muscular Rheumatism. - Sometimes called Myalgia. It is also called Inflammatory rheumatism. Here we have a very painful condition of the muscles, limited to the striped muscles. The pain is sometimes felt in the fascia and the periosteum but this is incurred from pressure of the fascia and periosteum by the muscles.

The predispositions are found in heredity, the rheumatic diathesis or heredity diathesis, Exciting causes are --

- (1) Exposure to cold and damp;
- (2) Traumatism;
- (3) Strain or sprain;

This type of the disease is entirely limited to the male sex. In the acute form it represents an inflammation of the muscles caused by the disturbed nutritive innervation. In the chronic form there is an alteration of the trophic condition of the muscles. The muscles atrophy.

Symptoms. - Among the symptoms there is --

- (a) Slight interference with temperature, either above or below, which can be told by the general condition of the body. If the patient is emaciated it will be below normal.
- (2) Unbalance of the circulation. It is of vaso-motor type. There is also a slight interference with the pulse rate. The third symptom is pain, especially upon
- (3) Pressure and movement.

There are a number of types of this form of rheumatism.

(a) This type is what is technically called Lumbago. Here we have a painful affection of the muscles and tenderness in the small of the back. The pains are paroxysmal, i.e., nervous spasms. The general effect of this paroxysm is to render the patient weak. Reaction is always towards weakest portion in the system, heart, kidneys. Consequently two reactions we get are angina pectoris and lumbago.

(b) This type is called Torticollis. - A stiff or wry neck. Here the muscles of one side of the neck and upper part of the back are affected. It is impossible to turn the neck around or away from that one side because the muscles draw the neck to one side. The principle muscles involved are the trapeziun and the sterno-mastoid. Tonsillitis is another complication, also growing pains.

In the female sex look out for uterine disturbances as the cause. The reason for this is that the wry neck is secondary to a vaso-motor condition and the uterine disturbance causes a reaction which is reflected to the muscles through the vasomotor area.

In the male sex look out for the disturbance of the liver. The reaction is from the liver to the trapezius muscle through the spinal accessory system.

On both sides look out for thoracic and pulmonary disturbance. The reaction there takes place through the vasomotor area in the upper dorsal region. The lesion here is principally in the sterno-mastoid muscle. Look out for the structural position of the clavicle and ribs.

(c) The third type is Pleurodynia. - Here we have an affection of the intercostal muscles, also the pectoral muscles, and the serrati muscles, usually on the left side. In this case respiration is restricted at least to one side. Sometimes it is difficult to distinguish this from intercostal neuralgia. Here the pain always follows the nerve path and the tender spots are always along the path of the nerve that is involved. In Pleurodynia the pain spreads out over the muscles radiating away from the nerve path rather than following it. It is also to be distinguished from pleurisy by the absence of febrile temperature which is present in pleurisy, it is also to be distinguished by the absence of the friction sounds. This is an important point to look out for as Pleurodynia may be mistaken for Pleurisy. Look out for pleurodynia as a complication of cancer, pulmonary tuberculosis, chronic gastritis, and Bright's disease.

(4) The fourth type is Rheumatoid Arthritis. - Here we have a condition which may be either acute or chronic disease, in which we have inflammation in the joint followed by --

(a) Progressive changes around the joint and in synovial membranes;

(b) The formation of new structure (bone) resulting in obstructed movement and deformity. This form of rheumatism has been improperly called gout.

The starting point of this disease is in the nervous system, in addition to the above is also a nervous trouble --

(a) Neuritis;

(b) Following or resulting neurosis.

The lesions are found in the spinal cord. Generally originating from traumatism, sometimes thrombosis in the spinal blood field, or some form of uterine disturbance in the early mature life, i.e., after establishment of menstruation. This is most common in

females from twenty to thirty years of age?. There is an atrophic condition of the nails, muscles, and is nearly always symmetrical, i.e., it involves the body from two points.

Pathology. - (1) The pathology of whatever condition precedes the rheumatoid arthritis. This is followed by -

(2) Increase of cartilage and synovial membrane cells, which

(3) Causes a softening of tissue, especially bone, with an absorption of softened bone, leaving the surfaces of the bone smooth, causing a

(4) Thickening of cartilage.

(5) Generally we find the formation of osteophytes, i.e., bone nodules on cartilage, also

(6) Degenerative changes in the spinal cord. This arthritis is found in two forms:--

(a) Non-arthritis. - This found in old people, affecting the knee and shoulder, and also the hip joint sometimes.

(1) In some cases it affects the articulation - loss of articulation - of the spine.

(2) The symptoms are found in the wasting away of the muscles along the spine.

(3) In some areas the vertebrae degenerating, especially in the cervical region. There may be a rigidity without, which is fibro-cartilage congestion. This is due to immobility in the neck.

(b) Multiple arthritis. - This form is divided into two types - (1) Modular type, in which the nodules develop principally in the phalanges.

(2) Progressive multiple arthritis. This begins with swelling and tenderness in the joint and becomes chronic when the joints gradually enlarge. This is found principally in the hands, wrists, toes, jaws, and spinal vertebrae. In some cases the entire body becomes affected in its articulations.

Treatment. - We differentiate in rheumatism primary and secondary causes. (a) Primary cause - Neurosis, involving the metabolic field, resulting in the perversion of metabolism; (b) Secondary cause - Production of toxin or some other substance, these toxins react (a) on nutritive field; (b) bioplasm field, i.e., (c) on the eliminative field, as a result of non-elimination.

Rheumatism is a blood disease, i.e., it exists in the blood field. The exciting cause being a neurosis. In rheumatic fever the real cause is the obstruction of the circulation of blood. It may said to be caused primarily from the liver and muscles, by the interference with the nerve functions to the liver and muscles. The liver is the great seat of metabolism. The interference with metabolism causes the formation of by-products which becomes poison or toxin in the system. We must distinguish between the primary and second cause.

The primary cause is an interference between action of the nerve centers, the secondary cause is some obstruction to the venous circulation. The tertiary cause is the formation of acid or some other substance and exciting cause formed in some local part, especially in connection with synovial membranes, these are secreting and excreting in function, which are susceptible to deposits and the formation of acid elements.

(6) Where the lower extremities are involved we find the field changed to the muscles, which are contracted around the thigh producing obstruction to the ilium, femoral and saphenous circulations. In the upper extremities in connection with the shoulder muscles obstructing or irritating the brachial plexus and involving the axillary and subclavian blood supplies, and also the trapezius muscles and the articulations of the acromian processes and the cervical vertebrae, we have these lesions. The muscles here are secretory, and excretory, changing alkalinity of blood to acid, in muscle contracture, when hyperacidity due to lack of with accumulation of acid.

Rheumatism is then usually of two types:--

(1) Resulting from obstruction, either to nerve or blood supply, or

(2) Vaso-motor - excessive detention of venous and capillary blood supplies. In both cases the heart lesion is always secondary. How is the heart affected? The heart is working strongly against the pressure and irritation of the obstruction. This causes an exhaustion of the heart muscle force resulting in stagnation of blood, this stagnant blood settling down in an inflammatory condition, of the heart muscle and rapid growth, resulting in hypertrophy. The same thing is true of the joint. When the blood is normal and normally circulating there are the necessary materials for the circulation, but where the blood becomes stagnant, there is a precipitation taking place from the acid into the crystal forms, hence, we find in rheumatism the precipitation of crystals of lactic acid and uric acid and rheumatic accumulations. This shows the chemical side of the disease. The predisposition to chemical process is caused by two things:--

(a) Physiological - Stasis of blood, i.e., field, and

(b) Chemical - Absence of sodium phosphate elements, food from cereal, barley, celery. Supply of NaPO_2 to the blood in food.

This is not a departure from osteopathy - If the liver is normal and is doing its normal work, the parenchymatous cells are of two kinds - (1) Biliary cells for the formation of bile, and (2) Hepatic cells for the formation of glycogen. When this glycogen is in circulation it is used in metabolism, forming heat, energy and the end product formed-lactic acid. When the liver is acting normally and the blood is normal in its constituency the lactic acid as the end product is divided into CO_2 and H_2O , This division of the lactic acid taking by katalysis, the ferment substance in the katalytic process does not take place, consequently the lactic acid remains in the blood and is retained in the local parts, particularly in those parts which do not have a free circulation, such as synovial membranes, etc.

How does this produce pain? The synovial nerves control the normal changes which the blood and lymph are unimpeded. Obstruction to the blood or lymph produces a lowering of the superficial circulation which causes contracture of muscles and blood vessels, producing pressure mechanically by contracture upon the minute nerve fibers. This mechanical pressure of contracture is increased

by an accumulation of the acid crystals. These acid crystals press upon the sensory nerve terminals causing pain, hence in rheumatism we have two types of pain ---

(1) Pain from pressure or obstruction -- nerve pain.

(2) Pain originating from impure blood -- blood pain.

In Physiology we have these two forms of pain as due to over-stimulation, and the "prayer of a nerve for pure blood".

(1) Attend to the patient's health in a general way by keeping a uniform temperature, say, about 70. Attend to the diet. Rheumatism is just as bad in tropical countries, because the existing cause of rheumatic pain is non-uniformity of temperature. In reference to the diet the patient should have only liquid food. Milk is the best form of a liquid food, where it agrees with patient. Peptogenic milk powders, Fairchild, Eskey Food, may be of some value when mixed with the milk. They will agree with all, except the old. The old must not partake of milk, for it is a poison rather than a food for them. Eliminate the carbohydrate food elements, i.e., cereals, etc., the only exception is barley. Sugar is also bad. Give a meat diet, by liquifying the meat, from predigestion side.

(2) In the general treatment -- (a) Relaxation of the muscles; (b) Pay attention to the limbering of the spine, by producing relaxation of the spinal muscles and free articulation of the vertebrae. If you find the spine exceedingly sensitive, give a general inhibitory treatment. Keep away from the points that are sensitive, when you begin, but gradually work towards them; (c) Relax the deep muscles along the spine, particularly in the upper dorsal and lumbar areas. This treatment is applied first by deep inhibition, then by pulling the muscles up and outward. The best position in which to have the patient is on the side. Pull the head and neck around forward. Put the patient's elbow against your chest and press in on the deep muscles close to the spine.

(3) Pay attention particularly to the liver and kidneys. (It is remarkable that the pancreas is not involved). These organs are nearly always enlarged. Pay attention to the vasomotors in the spinal region, corresponding to those organs -- (a) Give treatment in vasomotor fields of liver and kidneys; (b) Followed by treatment of the extremities.

(4) Specific treatment - This applies to the particular points where you have the condition. When the condition is in the lower extremities put the patient on the back. Catch hold of the ankle of the patient with one hand and the knee with the other hand. Then flex the limbs, at the same time rotating gently from without inward. After this apply the stretching movement, like you would if you were going to stretch the sciatic nerve, to get vasomotor effect. Then with the patient laying straight out on the table catch the head of the femur in one hand or the foot or ankle of the patient with the ~~other~~ other hand, and pull the limb diagonally across the other limb. You get a good stretching movement here and get the head of the femur in a position where you can manipulate it and also stretch some of the thigh muscles. After this apply

kneading treatment to all muscles of the lower extremities, if the muscles are extremely tight vibration is called for. Give rotation and flexion of the ankle joint. Then put the patient on side and give a thorough treatment to the muscles through the lumbo-sacral region; follow this by strong stimulative treatment at the center for superficial circulation.

In the upper extremities raise the arms as high as possible above the head on back. Have the patient in a sitting posture using the thumb at the point of the head of the humerus and the first rib, applying strong pressure at this point, moving the arm up and down while applying pressure. Continue the pressure with the movement of the arm along the entire spinal margin of the scapula. Then lay the patient down on the back. Place the hand over the clavicle, thumb in front and the fingers behind or close to the neck as possible, applying pressure from backward to front as tightly as you can and continue this pressure downward to the acromian process, not allowing the muscles to slip under your fingers. At the same time rotate and pull out the arm as far as you can, flex it on the body by flexing the forearm on the arm. Then with the patient in the same position get hold on the trapezius muscle and hold the muscle tightly while moving the arm up and down. While still holding this muscle throw arm over the chest applying strong pressure on the arm when it is on the sternum. Following this treatment catch the head and neck between your two hands and move the head from side to side to cause relaxation of the trapezius muscle, and also to relax the muscles in the cervical region. Follow this by the articulation and rotation applied to the head and neck.

(5) Stimulation of the eliminative system also the sweat system. Always treat the liver both locally and from its spinal center in order to stimulate the metabolic function. Give the treatment to excrete the bile so as to stimulate the secretion of the liver. Stimulate the glycogenic function by the rhythmic treatment of the liver.

(6) When the patient is convalescent supply the sodium phosphate in vegetable form, i.e., by lettuce, spinach, celery, water cress, cabbage, etc.

Treatment of Chronic Form of Rheumatism. - Here look out for a number of lateral deviations in the spine and the double curvature, i.e., double abnormal curvature, lateral to one side, or other. Look particularly to the lower lumbar vertebrae, the upper six dorsal and the fifth and sixth cervical vertebrae.

That fact takes chronic rheumatism out of the category of the acute form. In the acute form classified as neurosis of the vasomotor system. It is not vasomotor neurosis in chronic form. That makes chronic rheumatism visceromotor, i.e., typical non-trophic.

(1) Correction of lesions. The best method is by articulating the vertebrae. Try to get the normal contour of the spine established with its double curves, outward and posterior. The double curves will tend to correct other lesions in the spine if they are all freely movable on their neighbors.

(2) Free the circulation of the blood by a circulatory treatment given every second day, first giving slowly and then quickly every second day. Here begin with the superficial circulation at the fourth and fifth dorsals and then continue the treatment by flexion and rotation of the upper and lower extremities.

(3) Thorough kneading of the muscles all along the spine, especially in the dorsal and lumbar regions, with the patient on face side. The best way is to put the thumb at the spinous processes and push deep and then upward.

(4) With patient on face, along with the above treatment use the fingers of both hands on both sides of the spinous processes, pushing out deeply on the muscles, and move the muscles up and down the spine. If they are tight use the limbs as a lever.

(5) Apply flexing treatment to the joints, especially the knee, hip and shoulder joints, follow this by rotation of the limbs upward and downward.

(6) Strong inhibitory treatment in the lower lumbar and sacral regions - this is the visceromotor field, i.e., the contraction and dilation field from the visceromotor side - This may be given on the back or face, preferably on the face, for you can apply pressure directly on the lumbar and sacral regions.

(7) Attend to the diet of the patient, eliminating carbohydrates as much as possible. Use alkaline water freely. Advise the use of the bath by the patient, preferably some form of vapor bath. In breaking up adhesions around the joints, use the hot oven and assist it by osteopathic treatment to throw in arterial blood and to ~~the~~ throw out venous blood which is present in a stiff joint.

In Muscular Type of Rheumatism - there is a toxic condition present, so look for the cause of the disturbance, for it is generally associated with the thyroid glands, suprarenal glands and the blood forming glands.

In Lumbago - there are two things to look for -- (1) Lateral deviations of the lumbar vertebrae; (2) Along with this is a rigidity of the sacro-iliac or the sacro-lumbar articulation, also pain in the sacro-iliac region. Push the thumb between the ilium and spine to feel if there is rigidity, tenderness or cartilage structure. Look also for displacements of the lower ribs, especially the floating ribs.

Treatment. - (1) With patient on side, flex the upper limb of the patient, catch the limb under the knee joint in your arm moving it upward and around in a circle while at the same time applying strong traction pressure at the lumbar vertebrae. Then apply the same pulling treatment to the innominate on the same side and give the same movement. Turn the patient over and give the patient same treatment on the other side.

(2) Extend the limbs outward at an angle from the body while the fingers of the hand are fixed at the lumbar region and lumbo-sacral articulation; give the same treatment of the limb and extension of the spine.

(3) Place the patient on the back and apply strong pressure upward along the scaro-iliac articulation field with strong flexion and rotation of the lower limbs.

(4) Begin at the lumbar region and apply the treatment mentioned in (3) close to the spinous processes through the entire lumbosacral region.

(5) Give strong extension to the spine. The best way for extension is with the patient on face, pulling the patient down, out and downward.

In Torticollis or wry neck, vaso-motor condition, two things should be looked for --

(1) Lesions in the middle cervical region, especially the third, fourth and fifth;

(2) A cervical lateral curvature to the opposite side opposite the side affected. The vaso-motor condition is a constriction and refers to the vaso-motor fibers condition itself.

Treatment - (1) Attempt to correct the lateral curvatures through the cervical region.

(2) Relieve the spinal accessory nerve by treatment to the sternocleido-mastoid muscle and the trapezius muscles by rotation of the atlas and axis and the field of the upper six cervical nerves.

In relaxing the sterno-mastoid muscle pull as near its middle as you can at the same time rotate the head backward and forward as far as possible. In relaxing the trapezius muscle push the hand in at the angle of the scapula and then rotate the head forward in a circle, follow by pulling the arm up over the head across the chest, in both cases hold in the middle of muscles.

(3) With patient on one side treat the muscle, pulling them out and up, beginning at the second dorsal and treating upward through the dorsal and cervical regions.

(4) Extension and rotation of the head and neck even if it is painful. Continue this, for it is the best treatment for relaxation.

In Pleurodynia we have neuralgia, and sometimes a toxic neuritis of the pleural nerves. In other cases due to lesions involving the pleural nerves.

(1) Raise and spread the ribs and correct the displacements at the head of the ribs, for example.

(2) Pull the thorax as a whole from the diaphragmatic area and see that the cartilage around the ribs is not inverted or everted. Apply treatment from out and posterior while turning it between the two points.

(3) Give treatment by raising the ribs in a sitting posture, using arm as a lever and thumb or finger over left side of rib.

(4) When the patient is lying down pull the arms up over the head and at the same time have the patient breathe deeply. If the patient does not breathe in the upper part of the chest stand at the head of the patient and pull upward on thorax on the axilla.

(5) In scapular rheumatism in addition to treatment of pleurodynia manipulate all around the border of the scapula and relax the same by throwing the arm of the patient across the chest

till hand reaches the acromion process of the opposite shoulder, moving the scapula in all directions.

In rheumatism of the head look to the first four cervical vertebrae. Rotate them freely and relax the muscles through the cervical region.

In abdominal and visceral rheumatism look to the condition of the last four dorsal vertebrae and the last four ribs, especially the tenth rib. (1) Correct those lesions and give extension and elevation treatment to the diaphragm. Catch the cartilage of the ribs and pull out. (2) Give strong stimulation by articulation in the lower dorsal vertebrae area.

In the treatment of arthritis deformans we keep in mind that the condition is due previously to an atrophic condition and secondarily to a vasomotor disturbance. In the deformans stage it is always vasomotor. In other types of rheumatism the vasomotor neurosis is primary and the atrophic condition secondary. The cartilage, ligaments and tendons are not receiving the proper amount of nutrition. Lesions may be found anywhere in the vasomotor or nutritive areas of the spleen corresponding with the localized or general arthritis deformans.

One point where they are found most particularly is from the fourth to the seventh dorsal vertebrae. This is the area of general nutrition and coordination in nutrition between the upper and lower parts of the body.

(1) Specific treatment to open up the vasomotor function by relaxing and strongly stimulating treatment in the upper cervical region. Vasomotor cycle -- (a) Heart. (b) Arterioles; (c) Depressor nerve and pneumogastric nerve, first in relation to arterioles, and second in relation to heart. In any of these forms we may find lesions corresponding with the arthritis deformans.

(2) Circulatory treatment in the upper dorsal, lower dorsal and lower lumbar areas.

(3) Open up the lymphatic and sweat systems, i.e., in the lower cervical region in front of the anterior transverse processes, and in the special areas for the sweat system, lower cervical and upper dorsal, lower dorsal and upper lumbar.

(4) Manipulation of the muscles, the part which is affected, e.g., the finger, foot, etc., manipulating from the point affected along the muscle path to the nerve and muscle Parts and then back to the point affected.

(5) Give free movement to all the articulations of the parts affected, finger, wrist, etc.

(6) Apply strong treatment to the superficial circulation center, fourth and fifth dorsals. These patients are always superficially cold, which indicates a lack of coordination between the deep and superficial circulations. They generally have a good digestive function which indicates that the deep circulation is good.-- Differing from ordinary rheumatic patient is when digestion is bad, indicating complete dormance of the sympathetic system.

(7) Stimulation of cerebro-spinal side of the visceral function, i.e., the splanchnic function proper.

(A red nose may be treated by treating the vasomotors at the second, third and fourth dorsal vertebrae).

G O U T

Here we have a nutritive disturbance of the system produced by an acute infection or an auto-intoxication of some kind. This may be produced by --

- (a) Bad or deficient diet resulting in an abnormal accumulation of some acid, uric acid or lithic acid in the blood or in tissues;
- (b) The disease may be produced by an arthritis, caused by the deposits of sodium urates in or around the joints;
- (c) It may be a secondary inflammation resulting from disorganization of some of the organs of the body, such as the liver, stomach, kidneys and spleen.

As a disease it has not been found to such a long extent in this country as in Europe. It was generally supposed to be in part at least to hereditary conditions. It is found in the male sex almost exclusively, is found mostly in middle life.

The exciting cause of the disease is overeating and the use of rich foods. The excessive use of malted foods or drink, excessive carbohydrates and also excess of pure nitrogenous food, also insufficient exercise are other causes. It may also follow arsenic acid or lead poisoning. May also be due to nervous shock and to the excessively overworked nervous system, accompanied by traumatism.

The constitutional condition is to be distinguished from paroxysm of pain, the first form representing a neurosis of the nervous system and the latter paroxysm being or pain being brought on by some particular form of excess. Eating, drinking and working where you have the neurosis lying behind in the constitution will bring it on.

There are two types of gout in the general sense of the terms. There is the ---

"Poor man's gout" -- due to poor food and bad hygienic conditions, especially where the system is thrown or dependent upon carbohydrate food without sufficient nitrogenous food. The carbohydrate food here is the cause of the production of an excess of uric acid. The second type is called the

"Rich man's gout" -- It is due to an excess of nitrogenous food without carbohydrate, sufficient exercise to cause complete metabolism and elimination.

Osteopathically, gout is a disease of the nervous system, neurosis, the origin of the condition being the infeeblement of the nerve functioning in the visceral system, i.e., primarily it is sympathetic. The reaction from the sympathetic system is found producing a neurosis of the nerve centers that control metabolism, excretion or elimination, i.e., the cerebro-spinal centers. Consequently history of gout is:--

- (a) Sympathetic unbalance;
- (b) Reaction from this in cerebro-spinal system producing cerebro-spinal unbalance.

Pathology. -Here we have - (a) Localized neurosis of the articulating cartilagenous structures, cartilage, bone and membrane, the local neurosis is produced by a general neurosis in the nervous

(2) This localized neurosis produces an acid medium in which the acid urates deposit in crystalline form. The deposit is primarily (a) interstitial, and later (b) involves the tissue substance, i.e., the muscle, cartilage, bone and membrane, around the joint or the articulation.

Gout primarily attaches itself to the first joint, in the first toe or second, then it may spread to the knee, ankle or hand including the wrist. Chalky deposits are found around these joints, the deposits entering into the cartilage and forming nodules, e.g., there are generally nodules in the cartilage of the ear, nose, eyelids and larynx, sometimes the vocal cords become affected by nodulation. Frequently we find as a complication tonsillitis and laryngitis, and sometimes abscess formation and ulceration taking place, e.g., in the knuckles, ears and in the joints, which become enlarged, stiff and ankylosed. Among other organs affected are the kidneys and heart. These are the seats of chalky deposits. The blood vessels are also nodulated. In the treatment of the heart be particularly careful, because the left ventricle and its valves are nearly always the seat of sciatic disturbances and hypertrophy.

Symptoms. - (1) The paroxysm of gout is nearly always preceded by acid dyspepsia - the stomach and intestines being the seat of the acidity.

(2) As a reaction of the excessive acidity there is severe constipation, the acid acting as an overstimulation, thus causing inhibition of the peristalsis of the intestines. The best way to overcome this is to stir up the alkaline elements of the intestines. This may be done primarily by alkaline water, or stir up the alkaline function of the solar plexus.

(3) Scanty urine with great irritation in the urinary passages, followed by intense headache, dyspnoea and periodical physical prostration are the characteristics of the paroxysm of gout. There are three types of gout --

(1) The acute articular type - This type comes on suddenly with pain in the small joints of the foot or hand, the patient waking up during the night with pain; generally limited to one foot, sometimes both. There is - (1) Local heat, local inflammation, and the part is blue in color and pale whiteness, on pressure, (2) Circulation dilates; (3) The joints are stiff; (4) The skin hot and dry, accompanied by great perspiration, chilliness and thirst. The attack passes away almost as quickly as it comes on and returns again in ten days or more. Between attacks there is a urate deposit, acid accumulation in blood, and urine, also sugar and albumin. After the paroxysm is over the urine is increased in quantity and uric acid is eliminated. In some cases there are severe cerebral and spinal symptoms of uremic poisoning, complete collapse of patient, rigidity of the body, and feeble heart action and feeble pulse. Enlargement of veins and varicose veins.

(2) Chronic type of gout. - This always follows the acute type. The symptoms are the same, however, the joints are more affected, there is greater stiffness of joints and tendency to ankylosis. There is a chalky deposit in the joints with marked swelling,

increase in urine all the time, with a low specific gravity, sugar, albumin and tubular casts. In the chronic form of development you will often find aneurism following gout or rheumatism.

(3) This is the complicated type of gout. - Here we find secondary conditions added to an already existing gout.

(1) This complication is found almost entirely among the female sex. The most notable characteristic is eczema, with chronic diarrhoea, chronic gastritis caused by lithaemia and sometimes tonsillitis, engorgement or abscess of the liver.

(2) Nutritive disturbances reacting especially on the heart, caused by an excess of acid in the blood. This sometimes extends to the arteries in the form of a sclerosis, also in deep muscles. General symptoms in all types. Among the other symptoms are nervous headache, cramping pains in the lower extremities and itching of the hands and feet, and a tingling sensation over the surface of the skin. There is also a feeling as if the blood was creeping which is due to the acid element. The final complications are abscesses sometimes forming by the accumulation of the sodium urates, sometimes superficial and sometimes deep. Chronic forms of bronchitis are frequent, also endocarditis and pericarditis are frequent. The pericarditis is due to the acids in connection with the blood.

(3) Where there is constipation it is of the inhibitory type and should be counteracted by stirring up the alkaline elements in the alimentary canal.

Treatment. - Here we have a nutritive disturbance different from rheumatism. It is trophic. Gout is not a neurosis. It is an unbalance of metabolism. Consequently we must deal with gout from the metabolic side and look for lesions and in the metabolic plane. In all cases pay attention to the diet and hygiene of the patient. We find accumulations of the insoluble sodium urates and these around the joints. These accumulations in blood, tissues and around the joints represent the chemical cause of gout and indicate (1) Incompleteness in metabolism, and (2) Imperfection of elimination.

In the causes of gout the (1) is a defective innervation in relation to the metabolic field produced by:--

- (a) Dislocations of the larger joints, as the hip joint:
- (b) Displacements of the small bones of the foot, as the astragalus;
- (c) Displacements of the muscles in the foot or in the lumbar region;
- (d) Due to some form of disease previously existing involving the nervous system, as sclerosis of the nerve tissue.

(2) Defective or excessive oxidation of the food materials. Here there is a deficiency in the metabolism involving the metabolic field of the muscles and the liver.

(3) Defective or excessive alkalinity of the blood due to the accumulation of the alkaline elements in the blood or vice versa. In this case the blood is unable to act as a solvent on the acids. These acids accumulate at the local points, especially

around the joint. (1) Now, from a dietetic standpoint what will produce these conditions? The combinations of sugar with the vegetable acids is the primary dietetic cause. (a) This means that in treatment the patient should abstain from all kinds of sugar and sweets, and (b) From a positive standpoint the patient should have sufficient nerve food and fatty food, such as mutton, fat, pork fat, Russel's emulsion and fresh vegetables. In adults the free use of alkaline waters helps to regulate the alkalinity of the blood. Do not use distilled water.

(2) Reduce the quantity of proteid food and increase the quantity of fresh vegetables and fresh fruits. Eliminate the saccharine fruits, e.g., strawberries, bananas, figs and dates.

(3) Give the patient a limited quantity of fat. Eliminate as much as possible the carbohydrates.

(4) From the hygienic standpoint keep the patient from all physical and mental excitement. Have the patient use the bath once each day. When the patient is strong use the cold bath, but when weak use the tepid bath.

(5) In the strictly osteopathic treatment look for lesions particularly in the lumbar and sacral regions, and also subluxations of the astragalus. Downward movement of the metatarsal bones, tightening of the ligaments and atrophy of the muscles of the foot should also be looked for.

(a) Place the patient on the side and treat the whole length of the spine while moving the muscles upward and outward. Give strong treatment especially in the lumbar and sacral regions. Treat both sides.

(b) With patient on face place finger and thumbs on either side of 2. L.V. and lift up limbs of patient backward from off table while applying strong pressure on either side of vertebrae. Give same treatment to following two vertebrae.

(c) In case of constipation give thorough kneading of the intestines, beginning at sacrum and vibrating over liver field. If there is diarrhoea, strong inhibition at 11. & 12. D. on left side.

(d) If one foot is affected begin by flexing and rotating same on the affected side back upon abdomen and rotate from within outward., then stretch the limb out and manipulate muscles from hip to knee. After this rotate limb on the upper part and manipulate muscles below knee. Manipulate foot by first rotating ankle. Catch the front of the foot with one hand and with the other around the heel, pull toes in different directions, laterally and forward while holding the heel firm. After this hold the toes firm and rotate from the heel.

(e) Give extension to spine, and if patient is nervous, give good inhibition to neck to prevent previous treatment from going to the head.

(f) Keep up elimination as thoroughly as possible from the kidneys, skin and sweat standpoints. As an aid to this keep the circulation free from head downward.

L I T H A E M I A

Here we have a constitutional disease, sometimes called American dise gout, uraemia. It is due to --

(1) Defective oxidation of the nitrogenous elements carried by the blood, resulting in --

(2) Formation and accumulation of uric acid in the blood.

Here we have a different condition from gout. It is along the same lines as gout, but differs in this, that the deficiency is primarily in the digestive field and gradually in the metabolic field. In the primary field the condition is impaired digestion caused by the inactivity of the liver. In the secondary field the cause is both in the liver and tissues, including the blood as a tissue.

The exciting causes are overeating, also too much nitrogenous food, lack of exercise, etc. Another point in which lithemia differs from gout is in the fact that these end products, such as uric acid, remain in the system without any external manifestation, i. e., the deposits of uric acid locally are absent.

The primary lesions are found in the liver or its area of the spine, causing defective metabolism. The second point is the functional derangement of the glands of the stomach that are concerned in the formation of hydrochloric acid causing hyperacidity. The third point is the functional derangement of the suprarenal bodies, altering pigmentation and causing a modification in the vaso-constrictor area system. This is a point in which most writers do not lay much stress upon. The suprarenal bodies are most affected. In the fourth type, secondarily, we find excess of acid in the system which causes an irritation of the nervous system producing complications, such as neurasthenia, headache, constipation, diarrhoea, etc. There are two types of lithemia:--

(1) The acute type - Here there is a loss of appetite, fetid odor of the breath, indicating decomposition, marked constipation of a depressive inhibitory type, nausea and vomiting, after meals, enlarged liver with great tenderness in the liver area, slight febrile temperature, harshness of skin, clamminess due to cold perspiration, jaundice symptoms due to the obstruction of the hepatic duct and high arterial tension caused by the irritation of the uric acid. There is periodical cardiac irregularity, dizziness, headache in front of the head, flashes before the eyes, ringing in the ears, marked neuralgia anywhere in the body, a urinary condition in which we have uric acid, urates, sugar, albumin, etc.

(2) The chronic type - This generally follows the acute - here the acid condition of the fluid becomes a chronic condition - and in it we generally find disturbances of all the body functions. The most marked is chronic indigestion, general physical weakness, emaciation, asthma, cold hands and feet, irregular sweating, palpitation of the heart, catarrh, catarrhal bronchitis, paraesthesia (modified sensitiveness) along the spine, sometimes nephritis,

gall stones, commonly some type of obstruction of the gall ducts, of the blood system, especially the portal circulation. Sometimes there is displacement of organs, the liver and spleen especially. In these cases you get a congested condition of the liver and spleen, also tenderness in their corresponding areas in the spine.

Treatment - Here we have to deal - (a) With a digestive disturbance; (b) With a metabolic disturbance; (c) With an accumulation of uric acid or the salts of uric acid in the blood, represents an exciting disturbance. This is due to the absence of calcium salts in the blood.

(1) From the dietetic and hygienic standpoint the patient should be given the rest cure.

(2) Begin with absolute rest in bed for three or four days without food. Get rid of the floating proteid. Why? To give new start on nitrogenous food. Follow the rest with a little exercise for fifteen or twenty minutes, three or four times a day. In this case the best exercise is walking; best when done in fresh air and sunlight. Increase the exercise each day and vary the kind of exercise.

In regard to food - during the first three or four days after the second period the patient should have no food at all, except water and milk. Give no animal food. Give patient large quantities of water - especially the mineral waters. In giving the mineral waters there are two objects to be performed -- (a) To work out the impurities, and (b) To act as a solvent to the uric acid. The mineral water will act on uric acid so as to convert it to hipuric acid.

(3) Give the patient largely a milk diet until sufficient exercise can be taken so that vegetables can be added to the diet. Eliminate the vegetables having the saccharine elements, e.g., beets, and potatoes, add these do diet vegetable food fruits, particularly raw apples, because these furnish to the body the potassium salts. Vegetables like beans and peas are good. The skin should be removed from the beans as it represents the cellular element. Oatmeal in some form is also good for the patient. The oatmeal should be well cooked before using. The bread used by the patient should be toasted so as to eliminate the moisture, all saccharine and fatty materials should be eliminated from the food.

(4) When the patient has become able to exercise freely, juice from the meat or vegetables can be given and at this stage push diet, also fats, such as butter, oil, cream, etc. (In Germany a dish is made from eggs beaten up in the fat of bacon and served together is greatly relished by some).

In the osteopathic treatment -- (1) Thorough treatment of the liver and kidneys every day. Treat locally and at the spine, correction of lesions. In treatment of the kidneys give alternative pressure to both kidneys.

(2) With the patient on side, manipulate the muscles of the cervical region downward, inhibiting strongly any points of tenderness or contracture along spine.

(3) Extension of the spine and rotation of the head and neck, the object being to stimulate vertebral circulation.

(4) Treatment of the patient for constipation. This is a secretory type of constipation. Give strong kneading treatment at the caecum and continue in the regular order along colon. If constipation is aggravated give rectal dilation and then strong stimulation to the sacral nerves right over the sacral foramina.

(5) Kneading and vibration over the liver to get rhythmic effect.

(6) Correction of the lesions in the area of the organs affected, e.g., liver and spleen areas.

(7) Flexing of the limbs on the abdomen and then straighten them out with a jerking movement. This is a splendid treatment for constipation.

(8) With the patient sitting up place the thumb of one hand at the second dorsal at the head of ribs and with the other hand over the sternum and give strong pressure while some one else raises the arms and lowers them. Continue the same treatment down to the ninth, tenth dorsals.

(9) Look out for the condition of the suprarenal bodies. These are always involved in lithemia. Suprarenal bodies are in relation to the sympathetic nervous system. Consequently the best way to get at them is through a sympathetic treatment. Stir up the sympathetic system by articulating ribs on vertebrae.

(10) Give thorough circulatory treatment.

RICKETS

In rickets or rachitis we have a constitutional disease found in childhood and primarily caused by deficient, where nutrition has never been established in small child, or interrupted nutrition, where it has been established, involving primarily the entire body, but secondarily, principally the long bones, the cartilages and the periosteum. It is said to be hereditary, in a great many cases the child growing up into a condition of deformity, while in other cases the rickets comes on during the first or second years of the child's life. It is said to be a disease that is endemic in Italy and in some of the northern countries and islands of Europe. It is also said to be endemic in some portions of Africa. In this country and in Europe it is found in large cities. In Vienna this disease is the most prevalent of any other city.

The exciting cause is said to be in these cases due to the excessive use of lime water or chalky water, also bad food and unhealthy air. In large cities it is found principally where the diet is almost exclusively carbohydrate. This indicates that rickets represents the unbalance of the three proximate principles of the food - carbohydrate, proteid and salts, the carbohydrate being in excess.

Another predisposing cause is the prolonged lactation, i.e., where the child is nursed for too long a time by the mother. The milk does not supply the nutrition required by the child. Milk-fed children do not get their child teeth as early as others and the teeth are not as good when they get them. A child requires some solids as soon as its salivary and gastric secretions commence to be throw out. This occurs approximately when the child is six months old. The time may be noticed by the dribbling of the saliva from the mouth.

Pathology - (1) The starting point of the rickets is to be traced up to the (a) deficiency of secreting action, and (b) the deficiency of the salt elements. This represents perverted physiology field.

(2) The reaction from this is on the digestive metabolism and assimilative processes lesions.

(3) The long bones are the first that are affected. The ribs come under this head. The malnutrition of the ribs causes the shaft of the long bones to become soft and thin, while the cartilage is also thickened and soft. In the bones of the head there is also an incomplete ossification.

(4) The periosteum is also enlarged and instead of being adherent to bone it is separated and the bone becomes very vascular and soft.

(a) The causes of these changes is because the bones do not receive their proper nutrition. Bone development is normally slow, here it becomes more rapid and result is that a large number of new cells are formed, imperfectly;

(b) There is either a deficiency or oversupply of calcium salts. The frontal and parietal bones are deformed-rounded, the occipital and upper cranial bones are flattened. This is due to imperfect

nutrition. Nodules and tophi develop around these bones which prevent the bones from closing together, i.e., the fontanelles remain open until the child is from three to four years of age. This may give a tendency to hydrocephalus.

(5) The costal cartilages become enlarged and thickened with the thinning of ribs and there is a modification in the thorax, the sternum and sternal cartilages being pushed anterior, the angle in the ribs in some cases being entirely lost.

(6) The next changes are in the liver and spleen which become enlarged. This displaces the stomach and intestines and causes a protrusion of the abdomen. -- There is no symptomatology until the fifth stage of pathology.

Symptoms - Following this we have chronic gastritis, insomnia, mental and physical debility, febrile temperature, associated with lack of assimilation, soreness of tissues, especially when handled. The child becomes lazy and tends to lie on the back and pull the limbs and cross the arms over the chest. After this the muscles become flabby and causing hyperesthesia, anesthesia, and wasting away of the tissues. In this stage there is nausea, vomiting, diarrhoea, night sweats, paroxysmal pains with a clammy perspiration, rolling of the eyes up and back into the head, falling out of the hair and a wasting away of the tissues.

Among the lesions that are found are irregularities or breaks in the vertebrae. There are breaks in the spine, irregular curvatures lesions in the nutritive area of eighth and ninth dorsals, the lumbo-sacral area is always irregular and there is a tilting of the pelvis. Not an infrequent condition is the anus in the upper part of the body, especially the arms, with a peculiar paroxysmal movement of the extremities. In some cases there is paralysis. The paralysis oftentimes develops later in life to epilepsy.

Treatment. - The foundation cause is malnutrition, i.e., the inability of the system to take up sufficient materials for assimilation to the bones, muscle and cartilage. This means that it is a trophic disturbance - not a blood disease but a nervous disease - the lack of assimilation or trophic. This localizes it in the cerebro-spinal system which is the great trophic center. It is a neurosis.

(1) As to diet see that the child is not nursed too long, and not kept on an exclusively milk or liquid diet. Give the child only a limited amount of milk which has been sterilized and diluted. Never dilute the milk alone. Barley water or oatmeal may be used as dilutents. Barley water does not coagulate. Oatmeal water will coagulate and clot the milk. Do not give the child any starchy or solid food until the salivary secretion is begun. When the salivation has begun give a moderate amount of carbohydrate food - a large part of the muscle development is glycogen. A fatty food is good, as butter and cream. Buttermilk toast is also good. In giving a child bread and milk always toast the bread before putting milk over it. Then gradually change child's diet to the more normal diet - proteid, carbohydrate and fat, in proper proportion.

(2) In the osteopathic procedure in rickets the first point in treating is the spine. Even if the child is only a few hours old lay the child down on the face and give a light frictional treatment to the spine by running two fingers down along the spine.

(3) The application of heat and cold in alteration and keep spine warm by applying hot clothing or packs to the spine of the child. Many children are not very healthy because their spines are not kept warm. If the child is subject to convulsions they may be overcome by application of warmth to the spine.

(3) Stimulation applied to the two points for stimulant circulation - 4. and 5. D. and 2., 3. and 4. L. vertebrae. These are the two great points which control the superficial circulation and trophicity of abdominal cavity and lower extremities. Here you are also controlling cerebro-spinal fluid thrown out along the peripheral nerves.

(5) Stimulate respiratory action and eliminate all conditions retarding free circulation.

(6) Apply treatment to raise part of the chest and prevent all measures retarding expansion of the chest. This should be applied to every child after birth as the lungs are coming out of the apnoea condition and are apt not to get their full expansion. Crying of child is seldom harmful. Expansion should be applied by pushing on upward on the head of the ribs close to the spine with the fingers.

(7) Give extension treatment to spine. Do not pull on head of child but give the extension from the scapula under the axilla. This should be given every day for it separates the vertebrae and stimulates the growth of the child. In small children extension and not too much articulation.

(8) Deal with constipation or diarrhoea that may be found just the same as in a grown person. To supply the child with some oil or fat castor oil or Laxol, or sweet oil, olive oil may be used freely. It can be used both in diarrhoea and constipation and also for diarrhoea Sevotel is very effective.

(9) Constipation is generally of the vasoconstrictor type in the child. This is best controlled osteopathically by frictional treatment in the lower dorsal and lumbar areas followed by light inhibitory pressure in same areas, here begin with sacrum and go up. Diarrhoea is generally of the vasoconstrictor type also and is best controlled by inhibitory pressure at the lower dorsal area.

(9) When the child is suffering from colic pains you can bend its back over your knee at the lower dorsal area with a slight flexion of the spine backward.

S C U R V E Y

Here we have a constitutional disease in which we find --

(1) Great physical debility. It is commonly said to be brought about by long continued absence of long-sentia fresh forms of food, such as vegetables and the long continued use of preserved food. The real cause is an atrophic condition of the nervous system, the result of this is the lack of assimilation.

Among the principle characteristics of scurvey we find --

- (1) Great physical and mental weakness;
- (2) Great pallor of the skin extending all over the body, representing the atrophic and anemic expressions of the condition of the nervous system;
- (3) Well marked dyspnoea, which is sometimes vasomotor in its nature, a reaction from the atrophic nervous condition;
- (4) Sub-mucous and sub-cutaneous hemorrhages, with a swollen and spongy condition of the limbs;
- (5) The endurance of the muscles of the extremities, e.g., the muscles of the hands and feet.

Formerly it was supposed to exist almost exclusively among sailors. At the present time it is found principally in prisons, poorhouses and military camps, also in the slums of the cities. The disease is mainly due from the exciting standpoint to insufficient diet or lack of variety and unsanitary conditions, such as dampness and crowding.

Pathology. - (1) The starting point is the perverted function condition of the trophic function of the nervous system; (2) The chief morbid anatomy is cutaneous hemorrhages extending sometimes into the muscles and mucous membranes, especially in the nose and mouth. In the latter there is spongy enlargement of the nose and gums and mucous membrane growth. By the dark color of the blood the hemorrhage is indicated as venous. In some cases the teeth fall out. (3) The hemorrhage may also extend to the bronchi, lungs, spleen, liver and kidneys and the pericardium of the heart. The spleen and liver become enlarged and spongy. (4) Sometimes the mucous membrane of the intestines is affected.

Symptoms - The onset of scurvey is gradual. At first (1) There is a particular greenish or dirty yellow color of the skin which gives place to (2) Later a pallor. (3) Among other symptoms are mental apathy, indifference, carelessness, laziness, etc. There are (4) Rheumatoid pains in the muscles and soft tissues, fatigue on the slightest exertion of the body, also dyspnoea and always in a state of mental depression in the first stages of the scurvey. After these symptoms are developing an eruption appears in the form of a petechial in the lower extremities, then to the upper extremities and sometimes along the spine.

These develop into bullae or blisters, vaso-motor expression, and frequently there is ecchymosis and the skin in the affected areas become hard.

Sometimes the formation of callous spots is found. There is no febrile temperature unless there is some complication, as typhoid fever.

(6) The pulse becomes quick, while the first sound of the heart becomes feeble, indicating weakness of the nutrition and the soft and spongy condition of the musculature of the heart. The face is swollen and puffed and sometimes presents the appearance of a bruised condition of the face. This accounts for the statement that you will find in some of the books that the face becomes bluish.

The treatment of scurvy will be given in the following lecture in connection with the treatment of Scurvy Rickets.

SCURVEY RICKETS

Here we have a special type of scurvy - scurvy condition of the nervous system and rickety condition are combined together. Primarily scurvy rickets is a secretory disease, representing the combined action of atrophic condition of the nervous system - sensory, and the lack of proximate principle elements.

Scurvy rickets is a childhood disease, from two to three years of age, and the exciting cause is dieting on artificial food, such as sterilized milk.

Symptoms present are - (1) Physical weakness; (2) Marked anemia; (3) Ptyalism; (4) Restlessness and nervousness; (5) Lack of development; (6) There is a localized condition of swelling from the glands and skin; (7) Peri-articular rheumatism, great tenderness around the joints, especially when moved or touched. The child usually lies on its back with the limbs curled up, later the limbs become paralyzed from non-use. (8) Another marked characteristic is the subnormal temperature. Where the child is overfed there is a supranormal temperature.

Treatment of Scurvy - The real exciting cause is bad food and bad hygienic conditions. The most modern view in regard to the exciting cause of scurvy is that it is due to an excess of NaCl or an excess of sodium phosphate salts. The chemical side of the atrophic condition of the nervous system. These represent the alkaline medium where all lymphatic nutrition takes place. The primary condition in the body is the deficient action of the stomach. The lesions are found in the stomach area. This means that the stomach does not produce sufficient acid to overcome the excess caused by the sodium salts. That will make the primary cause of scurvy a deficient action of the sensory system with an underlying chemical cause, secondary to this the deficiency or lack of potassium salts in the body. This is the old idea which is primary rather than secondary.

(1) Dietary Standpoint - Have patient use food that will supply the potassium salt element, as fresh meats, corned beef and cabbage, celery, lettuce, etc.

(2) In the infantile type where it is due to the child being fed on artificial food, put the child on a normal diet. Change from prepared foods to a diet of potassium.

(3) The use of lemons, grape fruit freely in all cases excepting in the hemorrhagic types. Orange juice and peach juice are also good for conditions like these. Lemon juice helps to prevent coagulation and where there is internal coagulation there is liable to be emboli and thrombi.

(4) The most common secondary condition in scurvy is irritation of the gums and of the mucous membrane, also gastric condition of the stomach, forming gas. These conditions call for food in fluid form.

(5) If mastication is all right the patient should use fresh foods, like meat and vegetables, as onions, cabbage, watercress, spinach, lettuce, celery, etc., which are all rich in salt. Eliminate carrots, potatoes, turnips, etc.

(6) As to the hygiene see that patient has plenty of fresh air and exercise.

(7) Osteopathically the first point is to carefully attend to the condition of the stomach - fourth and fifth cervicals and fourth and fifth dorsals are lesions affecting or interfering with the tenth cranial nerve. Vasomotor lesions are usually found in the upper half of the dorsal region.

(8) Intensely contracted muscles in the lower cervical region, from fifth cervical down, are supposed to interfere with the tenth cranial nerve from its sensory or depressor side. Correct the lesions and see that the muscles are relaxed.

(9) Tenderness of gums and mouth and hemorrhages should be dealt with by strong stimulation in the upper cervical region to reach the medulla.

(10) Raising of the clavicles, particularly on the right side, and also the first and second ribs so as to get at the lymph supply and increase the richness of blood, also to increase the circulation to lungs.

(11) Treat the scapular area from the seventh cervical to the eleventh dorsal, give strong vigorous treatment in this area, loosening the deep muscles if they are contracted.

(12) Apply friction and vibration to the stomach,, especially when there is tenderness. It is inactive and the object of stimulation is to increase the peristaltic action.

In scurvy rickets apply the same dietetic and hygienic principles. In osteopathic procedure give treatment very similarly

(1) In the child give frictional treatment, beginning at the back of the neck and treat the whole length of the spine.

(2) See that the eliminative organs - skin and urinary - are in good order, and

(3) Watch for constipation and diarrhoea, separately or in alternation. Stir up the superficial circulation.

(4) In rickets, scurvy and scurvy rickets there there is an excess of venous blood and lymph, consequently stimulation of the formation of blood, either dietetically or otherwise will help to overcome the condition. We can force it by the use of red-wine, port-wine, red marrow preparations.

PURPURA

Here we have a symptomatic disease, representing a number of constitutional conditions, principally (1) Extravasation of blood on the surface of the skin, also in the mucous membranes. It is either over the entire surface of the body or localized. (2) The extravasation of blood is of a purulent character and does not disappear on applied pressure, i.e., underlying the blood hemorrhage is a pyemia condition. (3) In some cases there is an ecchymosis which is patched. (4) In other cases there is a petechial eruption which first appears in a bright scarlet colored form and later appears in a dark form as the blood becomes static.

(1) The first type of purpura is hemophilia. This is a purpura which is congenital, involving particularly the mucous membranes and the arterial wall surfaces. The symptom is spontaneous hemorrhage or excessive hemorrhage on injury resulting from a traumatism. This is sometimes called bleeder's disease. In some cases it is hereditary, in other cases it is undivided as a result of certain types of diseases. One characteristic of the disease is that it is limited almost exclusively to the male sex. It is sometimes transmitted in latency through the female in the male in the next generation. This condition shows itself quite early in life, the hemophilia coming out at about two or three years of age.

Pathology - (1) There is the loss of tonicity of the skin and mucous membrane, and subcutaneous and sub-mucous tissues. (2) The blood vessel walls become exceedingly thin, sometimes this results in fatty degeneration of the blood vessels. (3) The blood loses its tonicity and is also thin and resists the coagulation process. (4) Among the portions of the body affected are the synovial membrane and the joints, and (5) Effusion into the joints being very common. There are various degrees of hemophilia. The most severe type is where there is external and internal hemorrhages at the same time. The most common type is where there is a spontaneous hemorrhage internally. There are many cases in which ecchymosis is found without the real hemophilia.

Symptomatology and History - The hemophilia usually begins in the nose or around the teeth. The spontaneous hemorrhage may be found in the fingers, the ears or the alimentary tract. There is capillary hemophilia, especially in connection with the lungs and it is an exceedingly fatal condition where it is found in connection with a patient that is anemic. Preceding or accompanying the hemophilia is generally anemia, pain localized in the field of hemorrhage, the pain is of a constrictor type, also oedema and pain of oedema, and in some cases there is a localized inflammation with a febrile temperature following when the condition becomes general after it is local. Susceptibility exists in very cold and damp weather. In later stages of hemophilia it is often accompanied

by deformity of the joints, also stiffness of the joints and muscles. Most patients with this condition die in the age of puberty.

(2) Second type of the disease are the childhood types. --

(a) The first of these is the umbilical type. This type is found in hereditary jaundice and syphilis. It is sometimes associated with a number of these. It comes on a few days after birth, the hemorrhage taking place into the mucous membrane in the abdominal region and forming a sac in umbilical area, which proves quite fatal. The principal point of is the liver, secondary the kidneys.

(b) The second type in the childhood type is called the hemoglobinuric. This type is also found in children shortly after birth, usually on the fifth or sixth day. The attack comes on with severe gastric symptoms followed by diarrhoea and vomiting, the body becomes jaundiced in a few hours. The principal lesions found are a very marked enlarged liver, spleen and heart. The spleen is primarily the organ that is involved, secondarily the heart.

(c) The third type is morbiee maculosus. In this type the hemorrhage begins in the first week of the child's life, taking place in the stomach, nose and oesophagus, and if the child lives for any length of time ulceration and suppuration take place.

(3) Infective Purpura Type - This is due to a specific toxin or poison, e.g., purpura following snake bite. It may also be due to excessive use of poison, e.g., phosphorus, arsenic, and belladonna. It may also follow toxic diseases, such as smallpox, measles and cerebro-spinal fever. There is also a senile type where the extremities in old people become purpuric - gangrene.

There is also another type which is found in epilepsy and hysteria. It is due to a neurosis. Venous blood is found in the surface of the body. This is the "blue babies" type.

(4) The fourth type is simple primary purpura, not truly purpura. Here the hemorrhage is limited to the skin on which we find bright red spots just beneath the true skin, in patches. These spots are not affected by pressure, for the change takes place gradually from red to yellow, then there is a change from small red to large red spots. These large red spots are called vivicles. In some cases these become ecchymosed. This type comes on suddenly about the age of puberty and following typhoid fever, as like apoplexy in full-blooded persons. It is found principally in the lower extremities. The red spots come in successive crops. The condition frequently terminates in some form of localized gangrene.

(5) The fifth type is hemorrhagical purpura, associated with typical anemia called chlorosis, condition found almost exclusively in females. Here we have the hemorrhage from some mucous membrane, like the nose, mouth, and bronchial tubes, and sometimes from the skin, and even the serous membranes around the joints. This type is most frequently found in young girls just before or after puberty who have some constitutional debility. It begins with a general languor, mental and physical exhaustion, persistent headache, febrile temperature, eruptions on the skin, blood spots and then extensive and persistent epistaxis.

One negative symptom in the disease of great importance is the non-infection of the respiratory organs. An anemic patient always has shortness of breath.

Frequently there is an apoplectic hemorrhage taking place into the choroid plexus of the brain which sometimes results fatally. Among the characteristic symptoms we find pains in the iliac region, severe pains in the limbs. One characteristic of hemorrhage is that it follows some type of pain, e.g., severe pains in the epigastric region followed by hemorrhage, severe pains in the limbs followed by hemorrhage.

(6) The sixth type is called purpura rheumatica - In this type there is hemorrhage into the joints. The joints become swollen and oedematous. Around the joints there are peculiar eruptions, blood spots. These blood-spots are in the sub-cutaneous tissue. The tendency of this condition, if unchecked, is to pass into gangrene. Along with the hemorrhage into the joints we frequently find epistaxis, intestinal hemorrhage, endocarditis and pericarditis. Along with the foregoing symptoms we have chronic rheumatism, with all the symptoms and changes, including the deformities which we find in rheumatism.

Treatment - Primarily there is an involvement of the vaso-motor nervous system, accompanied by morbid symptoms, secondarily we find two conditions - (a) The excessive thinness and transparency of the vessel walls; (b) A tendency to hemorrhage. This, aggravated by the condition of the blood in which we find a state of anti-coagulation, that is to say, the blood condition has lost its isotonicity. In the blood we find the same conditions here as in scurvy, i.e., (1) Loss of the deficiency of the fibrin element of the blood; (2) Also a deficiency in the potassium and sodium salt elements.

The lesions that are found should be looked for in the vaso-motor area, or in the areas corresponding with the blood forming and destroying glands, the lymphatic glands, especially the spleen.

(1) From the dietary standpoint in treatment provide the potassium and sodium salt elements the same as in scurvy. The free use of salt, or salt and water, so as to preserve the isotonicity of the blood.

(2) Remember, that in almost all conditions the disease is hereditary. This means that the individual is to be watched, particularly at the periodical changes of life. For example, these hemorrhages are liable to come on in connection with dentation in the child. The reason for this is that the blood supply to the teeth is derived from the same source as the blood supply from the brain, hence, when there is an imperfect development of the teeth the blood supply will pass out as hemorrhage. The puberty period is also critical.

(3) In the early treatment of purpura in all types, deal with the superficial circulation firstly by inhibiting the superficial circulation at fourth and fifth dorsals, and then stimulate the circulation corresponding with the cavities of the body, i.e., articulation and rotation of the extremities.

(4) Build up the constitutional condition of the vasomotor system.

(5) In the purpura in the grown-up person the principal thing to deal with is the condition of anemia. There is a superfluity of iron instead of an insufficiency. Stir up the organs which assist in formulating and assimilating of iron.

(6) Stimulate the liver locally by both pressure and frictional treatment over the cartilages and at the spine. Give strong stimulatory treatment at eighth to tenth dorsals. In giving this treatment do not go below the tenth dorsal, if you do you will increase the excretion on account of the stimulation given to the intestines. Stimulate upward from this point so as to stimulate distribution of iron through the superficial circulation and system. The eighth, ninth and tenth dorsals are the liver and splenic areas.

(7) Give strong local stimulation to the spleen so as to overcome the enlargement, and to establish a rhythmic activity. Treat the spleen the same as the liver, on the left side of the spine.

(8) Give thorough stimulatory treatment to the lymphatic system in order to stimulate blood formation.

(9) In case of hemophilia where the point of hemorrhage is in the nose, apply strong inhibition in the intercapular area, then inhibit strongly at the angles of the jaw, pulling the head back and holding it tight while continuing to inhibit. With the head thrown back apply inhibition upward along the bridge of the nose.

(10) In the childhood types -- (a) See that the patients are kept warm and that the head is kept lower than the body. Aim to establish coordination between the ascending and descending aorta.

(b) Keep the child from exertion, even the exertion of nursing. Feed the child artificially by tubular arrangement. Diet in light digestible food, avoid constipation. Keep down obesity and treat lymphatics.

(c) Manipulate the circulation along the spine gently through the muscular system, particularly in the lumbar and sacral areas.

(d) The movement of the arms and limbs is contraindicated here.

(11) In all other types of purpura look out for, first of all the real cause of the condition. --

(a) Negatively do not treat systematically, if you do stimulate the skin lightly by friction so as to establish cutaneous circulation very freely. Do not treat the superficial circulation centers.

(b) Treat the heart only when there is danger of conditions involving the heart, if the patient tends to collapse then there is

a weak heart. In this case you must accelerate the heart. When treating the heart, in this case, treat so as to increase the strength of the heart, i.e., through the sympathetic nervous system.

To increase the force of the heart treat the fourth to sixth dorsals vertebrae by inhibition.

To stimulate the heart stimulate it from its trophic side. The pneumogastric is the trophic nerve to the heart, stomach and lungs.

Give the patient plenty of fresh air and fresh food.

(c) Treatment to the joints should be given just the same as in a case of rheumatism to prevent swelling, oedema, etc.

DIABETES MELLITUS

Here we have one of the most common constitutional diseases at the present time, in which we find a number of disturbances indicated by - (1) Excessive quantity of urine, and (2) Excess amount of sugar in the blood and urine. The sugar is that form known as grape sugar. (If sugar is found in urine there may not be diabetes for the sugar may not be that particular form as grape sugar. (3) Progressive constitutional changes, the most important being emaciation which is due to a deficiency of the metabolism of glycogen. (4) Progressive changes in assimilation, resulting in perversions of the tissues and organs. (If you find a patient with any or all the following conditions make a very close examination of the blood and urine as well).

(1) Enlargement of the liver;

(2) Muscular weakness, especially if it continues for any length of time, you will find a lack of co-ordination in the muscles. If one arm comes up and the other drags after there is an inco-ordination of the muscles.

(3) Emaciation which is gradual, especially in young people.

(4) Thirst that cannot be satisfied.

(5) Hunger that cannot be satisfied.

History and Symptoms -

Generally the disease comes on slowly, sometimes quickly. More common in the male than in the female, from 20 to 35 years of age. In some cases there is a hereditary element in the disease where there is a neurotism, particularly on the female side, i.e., it is in latency in female, obesity, gout, typho-malaria, etc., in the history. In the sudden cases there is a history of injury of some kind, i.e., overstrain of the system, especially where injuries are likely to affect the spinal cord or brain (medulla).

The lesions are found principally in the upper (1) upper cervical, first to fourth, i.e., sensory nerves, reaches medulla; (2) lower dorsal, posterior lesions; (3) lumbar and lower sacral regions, visceromotor and dilation, in the vasomotor areas to the liver; (4) Pneumogastric nerve regions, especially fourth and fifth dorsals where the nerve is sympathetically related, sometimes we have lesions in (5) the form of tumors, especially in the upper part of the neck. The most common lesions are in the upper cervical region.

Puncture of the structure of the medulla is what is called "puncture diabetes", in physiology, i.e., index of vasomotor condition.

Diabetes is prevalent in regions where there is oil.

Pathology. - (1) The primary condition is perversion of the nerve control of the sugar destructive process, i.e., in the field of sugar in excess above the needs of the system. It is this that traces diabetes to the medulla.

(2) The liver is hyperemic, hard, enlarged and becomes dark colored. Often there is fatty degeneration of the liver.

(3) The pancreas is involved in fibroid hardening, granular atrophy, i.e., hardening of the pancreas similar to what we find in cancer. This causes obstruction of the pancreatic duct by pressure.

The tendency of the pancreas in this disease is to atrophy. Often the pancreas is almost obliterated, at least in diabetes it is a defunctionalization.

(4) The kidneys are enlarged and hyperemic, the epithelium of the kidney being thickened. Following the hyperemia is ---

- (a) Fatty degeneration of the kidneys, and
- (b) Hyaline deposits in the substance of the kidney, with functional nephritis.

(5) Heart is usually hyperemic and hypertrophied and we often find arterio-sclerosis.

(6) Respiratory field - bronchitis is a frequent complication, and is due to fatty degeneration of the arterial walls of the bronchial tube, or to fatty degeneration of the pulmonary blood vessels and cells of the lungs.

(7) Another marked condition in diabetes is a dilated stomach. also hypertrophy of walls of the stomach. Sometimes there is an excessive abdominal bloating.

(8) In the blood we find varying proportions of sugar and also a large number of fatty granules. Examine the blood for they will not be found in the urine. This fatty granule condition indicates that the body is thrown into a state in which it converts it into its metabolic product, everything that enters the body, either in carbohydrate or fat form, instead of into nitrogenous, carbohydrate and fat.

In real diabetes there is fat and sugar -- (1) in the blood, development of diabetes. The onset is usually gradual. (1) Thirst is one of the first symptoms to present itself, next we have (2) frequency of urine, or defecation, tendency to diarrhoea or both. (3) After this, when the diabetic condition has become established, there is a well marked constipation with large quantities of urine, except in case of diarrhoea.

Always inquire if the (3) constipation (a) is preceded by frequency of defecation. Following this there is (b) scanty urine salivary secretions, (c) decay of teeth, (d) falling out of hair.

(4) General emaciation,
(5) Mental stupor and lethargy are absent, even in the latter stages of the disease. To differentiate from malignant conditions is where there is melancholic symptomatology, and (6) in the skin symptoms we have a harsh and dry skin, cracked. In the heart action it tends to flutter, palpitation, rapid pulse, slow action, which means incoordination in the circulation and the heart with a consequent vasomotor disturbance. Frequently the temperature is subnormal. The patient tends to be cold and chilly. Another marked condition is the presence of boils and carbuncles with the same sugar symptoms.

(9) The tendency to neuralgic and rheumatic pains is caused by peripheral neuritis, caused by deposit of sugar. When the pain is localized it is neuralgic instead of rheumatic.

(10) Cataract of the eye, ringing in the ears, sometimes abscess in the ears.

(11) Paroxysmal coma - deposit of sugar in medulla - make their appearance in later stages.

There are various theories in regard to the diabetes and its cause. (1) Excessive accumulation and lack of proper elimination of unused sugar; (2) Excessive oxidation of albuminous elements calling for an excess of sugar in abnormal metabolism. The oxidation process takes place to a greater extent in diabetes in connection with the red blood corpuscles than in the normal state, there is the deficiency of the red blood corpuscles, and a larger amount of sugar in the blood, the sugar remaining unmetabolized.

In other words, diabetes is a metabolic functioning. (3) Abnormal secretion involving the pancreatic function primarily. Diabetes affects the muscles, first unstriped later striped, because they fail to use a normal amount of sugar and the only kind of sugar the muscles use is that when it passes through the pancreatic processes. There is less than the normal quantity of glycogen produced. This accumulates in the blood in the form of sugar and from that elimination of sugar in urine.

From the dietetic standpoint it is advisable to bring the nitrogenous food supply to a minimum - albuminous metabolism can take place only in the presence of sugar, consequently when you reduce the albuminous diet to a minimum you reduce the amount of sugar necessary.

If the patient is emaciated give sufficient carbohydrate and nitrogenous food elements to keep up the balance in the tissues. By this we mean the equilibrium of N and C. If this is not done the patient will waste away and die. One element to be always given is bread. The patient should be supplied with from two to six ounces of bread every day. The bread may be of whole wheat because that suppresses the appetite. Diabetic or gluten bread is the ideal bread for the diabetic patient. Gluten flour is advised, especially the gluten flour made by the Franklin Mills, New York.

Give the patient fresh meats and vegetables, excluding those vegetables that are saccharine. Milk without cream is good. Butter-milk with the curd is excellent. Fruits, oranges, lemons and cherries may be eaten in moderation. Eliminate strawberries and bananas.

(2) From the hygienic standpoint prevent excitability. Have the patient take baths regularly and to exercise freely after taking the bath. Give the cold bath where the reaction is not accompanied with cold and chilly sensations. The hot bath is preferable.

(3) From the osteopathic standpoint the lesions are --
(a) In the lower dorsal and lumbar regions. There are marked posterior lesions and in some cases a spinal curvature in the lower part of the spine;
(b) In addition to this we have lesions causing pressure to the atlas, axis, clavicle, and
(c) The first two ribs and corresponding vertebrae, sometimes. Often there is --
(d) A lesion at the fourth and fifth dorsal vertebrae, sympathetic condition;
(e) In acute cases of diabetes we find a condition of intense muscular contracture -----

(a) In the region of the superior and inferior sympathetic ganglia,
(b) In the lumbo-sacral region. The lesions indicate that the true theory of diabetes is the excessive accumulation and lack of proper elimination of sugar caused by the failure on the part of the secreting apparatus. The failure of the secreting apparatus is based on two facts -- (1) The unbalance of the proteid and carbohydrate metabolism, and (2) the deficient control of the secretion from the vasomotor side.

Pancreas furnishes sugar to involuntary muscles. This is the vasomotor side of diabetes.

Liver furnishes sugar to voluntary muscles. That is why the voluntary muscles do not emaciate until late.

Internal secretion of sugar is necessary to the metabolism of involuntary muscles, consequently when the pancreatic function is disturbed we get the vasomotor symptomatology. This explains why there is no excess of sugar in salivary secretion of diabetic patients.

In this case the lumbo-sacral is the primary field of diabetes consequently this region is the field of dilators to the excretory organs - consequently these lumbo-sacral lesions are secondary in diabetes representing the elimination side.

Treatment - (1) Manipulate muscles strongly downward from ninth dorsal to second lumbar, with strong stimulation in the splenic area and the pancreas.

(2) With patient on face give treatment for stretching lumbo-sacral region, by laying hands on sacrum while elevating limbs backward and then laterally, and sacro-iliac articulation, take each limb and give strong articulating movement.

(3) Put patient in "jack-knife" position, on side and flex limbs on abdomen while having flexed limbs in hand in such a way as to enable to catch the spinous processes in lower D and L regions. Continue this treatment upward to entire vasomotor area-D-D-2L- so as to reach portal circulation to hepatic cells of liver. Follow this by strong stimulation of spinous muscles on either side of spinous processes in same region.

(4) Give strong stimulation to liver. There is congestion of the liver. This causing a fermentation in the blood, while this a conversion or transformation of glycogen into sugar in the blood. In all cases of diabetes keep liver well stimulated and should be treated every day or so.

(5) Correct lesions first at atlas and axis, after which the clavicle and first rib, so as to set free the tenth nerve. Then relieve the contracture of muscles interfering with sympathetic system, the fibers of the S.S. passing to the celiac plexus. Always treat the sympathetic ganglia whether there are lesions or not, because this enables us to establish visceral control, by articulation of ribs.

(6) Attend to the correction of the posterior curvature in the lower dorsal and lumbar areas. That is the lesion in the eliminative area, i.e., secondary field. Primary field is metabolic field - fourth dorsal to eighth dorsal, field of nutrition.

(Side notes for Diabetes mellitus on bottom of page 185).

DIABETES INCIPIDUS

Here we have a functional disease, involving primarily the field of (1) Liver and spleen, and (2) Kidneys, secondarily. In this condition we have no sugar in the urine, or only the normal amount of sugar in the urine or blood. The condition is marked by excessive secretion of the urine, polyuria, followed by its excessive excretion. Primarily diabetes incipidus is not a disease of the kidneys. The disease is sometimes called polyuria. The excessive action of the kidneys is a result of --

(1) That excessive elimination visceromotor condition stimulated by excess of pressure in the blood field, and

(2) In the increased volume of the blood in the kidney field, visceromotor, due to the excessive secretion.

Primarily this form of diabetes involves the metabolic function, either of the liver or pancreas, or the spleen or all three combined together. In other words this is a functional disease, in which we have the overactivity of one or more of these three organs, caused by the overstimulation of the visceromotor function.

From the osteopathic standpoint we always find lateral displacements of the vertebrae in the lesser and renal splanchnic areas from ninth to twelfth dorsals. These displacements or lesions react backward on the central nervous system and cutting off the impulses normally sent out to the kidneys through the sympathetics. In aggravated cases this cutting off amounts to an inhibition of impulses resulting in paralysis of the walls of the renal blood vessels. The result is an increase in the volume of the urine, as a result of an increased volume of blood. Sometimes this condition is a result of traumatism involving the spinal nerves in the lesser and least splanchnic areas. Sometimes it results from a disturbance of the medulla involving the visceromotor centers which is concerned in urine separation on the kidneys. This visceromotor center lies above the vaso-motor diabetes center on the floor of the fourth ventricle just a little above the respiratory center, in close relation to cardio-inhibitory center. This medulla lesion is generally secondary to lesions in the upper cervical region - the cervical lesion acting directly through the medulla, or individually or indirectly through the superior cervical ganglion. In all these cases the result is to cut off the visceromotor action on the bloodflow through the kidneys, hence, the urine -- excretion depends entirely upon the physical condition of blood pressure and blood volume.

Treatment - Here we are dealing with a functional condition -

(1) involving a neurosis of visceromotor in the kidney field of the blood, and (2) exaggerated metabolic activity in liver, spleen and pancreas; (3) The reaction of this exaggerated visceromotor stimulus to metabolism in connection with the blood circulation through the kidneys.

(1) Correct lesions found in lesser and least splanchnic areas in form of lateral lesions. Treat lesions with patient on side, down toward table with articulatory movement.

(2) Correct any lesions that may be found in the cervical region involving the atlas-axis, first two ribs and clavicle. Cervical lesions can best be corrected with patient on back. If there is an atlas lesion do not attempt to correct it in one treatment.

(3) With patient on back put in the fingers close to the spinous processes in the lesser and least splanchnic areas. Push upward gently and hold up. After holding for a short time let go suddenly so as to allow the jerking motion downward. Result is inhibition followed by sudden stimulation.

(4) With patient on side apply treatment for the relaxation of muscles. Give the treatment at this point downward from the occipital region.

(5) With patient on face give articulatory treatment and also apply inhibitory pressure of the hand over the sacro-lumbar region while pulling the limbs upward and backward tending to cause pelvic congestion.

(6) Vibration over the kidneys applied beneath the ribs posteriorly with the patient laid out on the face. Along with this vibration give a light tonic treatment to the renal splanchnics or the twelfth dorsal, also pressure right over the kidneys with the patient on the back.

(7) If you create a condition of suppressed urine if the trouble is in the kidneys get the fingers in and press the kidneys up and downward.

(8) Diet the patient with food that will be non-fermentive,

(9) In all cases of diabetes stimulate the circulation strongly, because in diabetes there is either venous stasis or the tendency to it, and this is one of the causes of the tendency of blood fermentation.

(10) Pay careful attention to the pneumogastric nerve. The tenth cranial nerve is the seat of control over the kidneys visceromotorily.

(11) Look out for reactions in diabetes upon some particular function of the body outside of secretory, hence, we find reactions on mental side - nervous side.

OBESITY

Here we have a constitutional and functional disease marked by -- (1) abnormal transformation of proteid and carbohydrate substances into fat; (2) abnormal accumulation and deposits of adipose tissue the organs, within the tissues or between the tissues. The primary condition of obesity consequently is the one of the unbalance of the metabolism of the proximate principles. The main cause of obesity from the physiological standpoint is --

(1) The sluggishness of the pancreas from the external secretion side, diabetes sluggishness of pancreas from inter-secretion side, sometimes

(2) Deficient functional action in the pancreatic secretion field. Stimulation of the pancreas is often sufficient if the disease has only just started. Following the involvement of the pancreas there is an involvement of the accessory organs --

- (a) In the digestive field;
- (b) In the secretion, especially the stomach and stomach glands;
- (c) In the intestinal glands, especially in relation to the lacteal glands or system. The principal cause chemically

is to be found in the deficiency or the entire absence of the solvent ferments furnished by the pancreatic secretion. Normally, these solvent ferments are necessary to split up the excess of fats either taken as food or formed inside the body from carbohydrates plus water - the two forms in which the excess is excreted. This means that obesity (1) is not a disturbance of the nutrition of the body, but is (2) a disturbance of balance of nutrition. The real cause of the disturbed balance being a neurosis on cerebro-spinal side, represents the trophic function which is interfered with.

The exciting and predisposing causes are overeating and over-drinking. The real cause is a neurosis causing the lack of control through the nervous system over the excretory secretory processes. This means that from the the nervous system standpoint the probable lesion is one involving (a) the great secretory center in the medulla, and (b) at any level of the spine where we find the trophic centers in the anterior horn cell field, representing trophic distribution not trophic origin.

Anemia blood condition - of fatty granules and hysteria of nervous system side are both conditions which frequently give rise to obesity.

There is not much to be said in the morbid anatomy and symptoms of obesity.

Treatment - I. Before giving the strictly osteopathic procedure in obesity we will consider a number of points from the diatetic side in the treatment of the condition ---

(1) Reduce total quantity of food taken by patient while keeping up the normal ratio between the food elements. The normal ratio is about one to two and one-half, three and one-half to four and one-half. Obesity is abnormal formation of fat in system from carbohydrates and proteids.

(2) Make patient eat and drink only at meal times, except that patient may be permitted to take hot water half an hour before meals instead of at meals - make or allow quite a little of it. In these cases do not allow patient to take any fluid at meal times.

(3) Diminish the amount of fluid used in the cooking of the food, giving the patient food as dry as possible at the same time keeping it palatable.

(4) Eliminate the saccharine fruits and vegetables from the diet.

(5) Reduce the amount of fat to its minimum, unless you give the patient a diet that is almost exclusively fat - maximum of fat and minimum of proteid and carbohydrate.

(6) Give the patient the minimum quantity of bread and the best kind of bread to use is the gluten bread - albuminoid food like gelatin.

(7) See that the patient takes systematic exercise up to the point of exhaustion and frequent use of baths along with the food diet. Vapor, mud or Turkish baths are excellent.

II. In the osteopathic treatment the first point is treatment to the pancreas, locally, right over the cartilages of the eighth to tenth ribs, and along the path of the pancreas from the duodenum to the spleen. Flex the patient's limbs and push the intestine down to reach the pancreas.

(2) Look particularly to the condition of the lymphatic system, especially at the last cervical and first dorsal, also fourth, sixth, tenth dorsals and second lumbar vertebrae. Pay particular attention to these two points for they control the pancreas, receptaculum chyli, second and third lumbar, and the thoracic duct, fourth to sixth dorsals.

(3) Look carefully to the condition of the scapulae. In obesity you will find the scapulae always too close to the spine and rigid. Treat the scapulae to relax the rigid condition.

(4) Stimulate strongly the axillary region, more particularly on the right side. Put in the hand and pull up the arm to relax the muscles.

(5) Keep up elimination - sweat, urinary and foecial - in medical treatment the principle of treatment is to produce a diarrhetic condition.

B L O O D D I S E A S E S

Blood diseases include those that affect the quantity as well as the quality of the blood -- also those diseases which affect the blood forming glands. There are a number of types of these blood diseases -- Oligo, Cythaemia, a diminution in the number of red blood corpuscles, Leucocythaemia or leucocythemia, increase in the number of white blood corpuscles, especially giving an excess of the polygranular corpuscles eliminating those cases in which we have functionally an increase in the white blood corpuscles, e.g., as in a new born child, during the period of pregnancy, or during the process of digestion.

There are a great number of pathological blood conditions, e.g., the different forms of anemia, lesions of the lymphatic glands such as goitre, exudation diseases, e.g., pericarditis, and inflammatory conditions accompanied by or accompanying the exudation, e.g., polyarthritis.

Sometimes the blood diseases are secondary, e.g., smallpox, the epidemic types of spinal meningitis and in the different forms of apoplexy, representing hemorrhage.

In the blood diseases we may attempt classification --

- (1) Blood condition that eliminates from other tissues or organs of the body. Here we have the process of elimination into the blood as a means of saving other parts of body.
- (2) Blood condition - when the blood as a tissue acts on the
 - (a) of its anemia and hyperemia;
 - (b) of the integrity of the organism - leucocytosis, this is a repair process, also a protective process, associated with phagocytosis;
 - (c) In defence of some other tissue or organ of the body. - congestion and certain inflammatory processes.
- (3) Blood condition representing abnormal development or growth in the blood field and protect the organism or its parts from intoxication. Here we have the toxicosis of blood in the and neoplastic conditions.
- (4) Blood conditions that represent attempt to balance up deficiency on the lymphatic side. Here we have the blood conditions in scrofula.
- (5) Blood conditions that are compensatory to nervous unbalance. This is largely in the field of the blood as a fluid to cerebro-spinal fluid;
- (6) Blood conditions based on
- (7) In some diseases leucocytosis is an important asymptomatic condition, e.g., typhoid fever, where it indicates a tendency to thrombosis. Another condition in which leucocytosis figures prominently is in the post-febrile rise of temperature where you find the leucocytosis and distinguishing it from a relapsing fever. This abnormal increase in white blood corpuscles is a most important condition of repair in all blood diseases. It may assume the form of phagocytosis where there is a germ disease or a germ condition associated with the disease. The phagocytic function being the function of the blood destruction of the germs or germ.

In some cases the red blood corpuscles gives themselves up to destruction also, they are greatly diminished, increase of white blood corpuscles, the shape and size irregular, e.g., leucocythemia, repair process to make up for decomposition.

Microcytosis is also an imperfect condition of the blood in which we find a large number of small cells in the blood. It is found either in connection with or without hemoglobin. This condition is found principally in toxemia because toxins produce the breaking up of the corpuscles, especially the red blood corpuscles.

Melanemia is a condition in which we find in the blood small black, brown, or yellow granules, originates from malnutrition. These granules float about in the blood and form in many cases pseudo-leucocytosis. These are found principally in malaria, and in the different types of relapsing fever. In other words, they are foreign corpuscles which are nucleated and they deplete the regular corpuscles by taking the nutrition.

Lipemia following conditions also in spleen and liver. In liver the fat in in the droplet form - represents a condition in which we find a large number of fat granules in the blood chiefly in the drop-form, where droplets of fat is formed. This is found commonly in the chronic diseases, e.g., chronic alcoholism, chronic nephritis, chronic diabetes, and in diseases involving the bones, especially where the marrow of the bone is affected by an injury to the bone.

The abnormal increase in the corpuscles is found principally in the chronic diseases and this means that the blood should always be subjected to examination in these chronic diseases. (The instrument needed is a haemoglobinometer and a haemocytometer of the Gowers and Zeiss pattern. Blood examinations by Ira S. Wile). These abnormal types of corpuscles represent changes in the blood as a tissue. These changes consequently in the blood as a tissue all produced by an reaction and to some abnormal condition of the organism, i.e., this is an incoordination of the blood tissue in relation to other tissue, e.g., if you find fatty granules in the blood. This indicates one or two things - (1) deficient action in the fat destroying or fat splitting secretions, e.g., the pancreas, (2) an over or under-functioning of the fat producing or the fat converting organs of the body, e.g., liver and lymphatic glands.

Treatment - (1) These conditions of the blood must all be treated in connection with or through the blood forming glands, especially the spleen and the thyroid bodies - the spleen representing that gland which has the function of blood enrichment, and the thyroids the function of purification and destruction.

(2) In relation to the internal secretions the cause is in the field of blood diseases, consequently these are the contributing streams to the blood.

(3) In relation to the coordinate action of organs - imperfect action of organs always a factor in imperfect blood purification, i.e., all blood diseases are to be treated in relation to the functional correlation of organs.

(4) Lesions in those blood diseases are to be looked for especially -- (a) at the seventh cervical and first dorsal; (b) in connection with the clavicle and first rib; (c) second and third lumbar, which represents the lacteal and lymphatic systems and is the gateway from the digestive or in the intestines to the blood through the lacteal system.

(5) Deal with the blood diseases always through peripheral resistance field, i.e., the capillary circulation.

(6) The specific treatment of the lymphatic system is always called for in all blood diseases, because the lymph is the fluid which lies at the foundation of the blood. Remember that the strong point of the lymphatic circulation from the side of reconstruction is threceptaculum chyli. This is controlled nervously - (a) from the fourth to sixth dorsals; (b) from tenth to twelfth dorsals, field of sympathetic action of solar plexus, and (c) second to fourth lumbar, visceromotor field of the lacteal system. Begin the lymphatic treatment at the first of these points in order to secure thorough relaxation of the lymphatic duct system and the continuity. Follow this by the treatment directed to the scapulae to separate them from the spine and to free them in their soft tissue attachments from the ribs. After this pay attention to the last cervical and first dorsal vertebrae, the clavicle and first rib; Freely articulate them and relax the soft tissue structures. These forms of treatment of lesions apply to all forms of blood diseases.

In connection with the blood we find four corpuscular elements -

- (1) Regular red blood corpuscles, protoplasmic;
- (2) White blood cell, representing bioplasm, cellular element;
- (3) Platelet, representing nucleoproteid element of blood, i.e., the protoplasm of the nucleus;
- (4) Granule, representing the protoplasmic side of the non-proteid element of the blood cell.

(1) The ordinary blood corpuscle that is red. The ratio between the red and white corpuscles is normally 350-500 to 1. In the male there are many more red blood corpuscles than in the female in ratio of about 5 to 4. The white blood corpuscles are more important than the red, they are cellular elements and are the life of the blood. We have different varieties of white blood cells - five varieties in all. --

(1) The small-mono-nuclear white cell, that is about the same size as the red blood corpuscles with a large rounded nucleus and large amount of fat. These are lymphocytes just newly emigrated into the blood, The margin of these corpuscles is non-granular.

(2) The large mono-nuclear cell, with the rounded or oval nucleus, the nucleus in this case being very small with large margin of granular matter.

(3) This type is what is called the transitional cell or corpuscle in which we find two nuclei, these nuclei forming a structure about the shape of the letter which is surrounded by protoplasm in chain form. These are the best types of cells for examination from Ehrlich's theory side.

(4) Here we have a poly-nuclear cell corpuscle which has a long and irregular nucleus. The protoplasm substance consisting of two well defined substances, the first being stainable by the acid dye and the other by the base dye. This polynuclear corpuscle is the nuclear corpuscle.

(5) The fifth type is the regular white blood cell corpuscle. This type has the active amoeboid movements and is only that has granular matter, in this case stains in the acid dye. The normal white blood throws off the alkaline elements. These white corpuscles are highly refractive, i.e., less fatty substance in these than in the other types, more of the typical proteid. These are the only corpuscles or cells where there is point of reproduction.

The most important type is (5)

The ratio which these normally are found in the blood is --

- (1) Represents about 15 to 25%
- (2) and (3) represents about 6%
- (4) represents about 65 to 80%
- (5) represents about 2%

In the examination of the blood the color, composition, presence of parasites in connection with the blood, are all of the most important points that are to be attended to.

Microcytosis in hemorrhages is a constrictive process.

" in toxemia is a constrictive process.

Platelet is nuclec-proteid substance from the nucleus of white blood cell, especially from (3) If these platelets are greatly in excess they indicated disintegration. This platelet represents nerve development, consequently they build up protagon of the nervous system.

The granules represent fat and that is found in mono-nuclear white corpuscle, i.e., (1) and (2), especially (1). This granule is used especially in building up the nervous system.

A N E M I A

Here we have a condition of disease in which we find a reduction of the number of red blood corpuscles or the reduction of the amount of the hemoglobin in the blood or albumin in the blood, or all of those conditions combined together. There are quite a number of types of anemia. It is a question among different writers if all anemia is not toxic. We classify anemia under three heads:--

- (1) Non-toxic anemia, with toxic by-products;
- (2) Real toxic anemia, poisons;
- (3) General toxic anemia, where we find some toxemia.

The real toxic type, however differs from the general toxic anemia, because it is produced by the metallic poisons, lead, arsenic, phosphate and potassium, antipyrin and acetanilin produce the same results.

The parasitic anemia is best illustrated by the anemia in malaria. The anemia following malaria may be due to the parasite which is found in connection with the malaria, also the anemia due to worms. The most common type of parasite which produces anemia is the cephalus Latus. This worm eats into the blood and destroys the blood and thus produces a toxin which upon accumulation causes anemia.

Anemia following hemorrhage is frequently associated with purpura, sometimes in the female sex with menorrhagia and metrorrhagia.

Anemia from constitutional and local conditions is found principally in connection with tuberculosis, syphilis, cancer, Bright's disease, chronic gastritis, the actual cause being either perverted nutrition, loss of albumin, or the inability of the system to assimilate. In this condition the most common thing we find is the enlargement of the spleen. The anemia from malnutrition is associated with the deficiency of the blood.

C L A S S I F I C A T I O N O F A N E M I E S

In classifying anemias from the side of their relation to the blood cells, we have two types --

(1) NON*CYTOGENIC --

(a) Hemolytic:--

Chlorosis, Pernicious anemia; parasitic anemia, -
malarial fever; Toxic anemia, diabetes mellitus.

(b) OLIGOCYTHEMIA:--

Parasitic, malaria type; Post-hemorrhagic type;
Anemia from loss of albumin, Bright's disease;
Anemia from malnutrition, Rickets.

Classification of anemias -- Continued.

(2) CYTOGENIC, relating to cell characteristic --

(a) Leucocytic -- involving --
Spleenic field,
Lymphatic glands, and
Medullary field.

(b) Non-leucocytic:--
Hodgkin's disease.

C H L O R O S I S

(Green sickness).

Here we have a functional disturbance which is found mostly in those about the age of puberty in the female sex.

(1) The characteristics are great pallor of the skin, sometimes whitish-yellowish color, similar palor or whitish yellow color of the mucous membranes.

(2) Later there is a development of a green tinted color and also in the mucous membranes.

(3) Pearl color in the face and eye along with the contraction of the eye, eye becomes small not pupil, but also eyeball.

Among the symptoms we find (1) great physical debility, langour, exhaustion; (2) marked dyspnoea and accompanying palpitation of the heart; (3) spasmodic dizziness, neuralgia, great mental and nervous depression, inability of the nervous system; (4) There is also nervousness, marked by irritability, peevishness and tremulousness; (5) With the humming murmur of the venous blood which can be heard over the jugular vein.

Chlorosis is found more commonly among the blond types, especially those who have been subject to physical debility from infancy. At first there is seldom a loss of flesh, later there is, the skin becomes pigmented, marked constipation, excessive flow of urine with a low specific gravity. Gastrointestinal derangement with an appetite for some abnormal food elements, e.g., vinegar, and among school girls for slate pencils and chalk, is another symptom. Two other marked symptoms are (1) severe periodical gastralgia, and (2) marked periodical systolic murmur over the base of the heart.

The most common exciting cause is overwork under bad diatetic and hygienic conditions, e.g., among the factory girls. One of the predisposing causes is overexertion which produces an overstrain of the nervous system before it reaches maturity, producing, in the morbid anatomy field, hyperplasia of the entire blood system from the tissue side of blood, one of the most marked results is the great dilatation and thickening of the left ventricle and blood vessels,

representing the chronic condition of anemia. In other words there is a neurosis.

In regard to the changes in the blood there is always a reduction of the hemoglobin in the blood which is very marked -- 5 to 20, 30 or 50 per cent either with or without, a reduction in the number of red blood corpuscles, sometimes red blood corpuscles not diminished. The red blood corpuscles are very pale which is due to the lack of hemoglobin, and we also find a great variation in the size of the red blood corpuscles with a large number of microcytes. These microcytes are sometimes nucleated. The leucocytes are seldom affected. In some cases there is a slight increase in the number of leucocytes. In some cases there is hyperacidity of the stomach, a slight rise in temperature and a full and compressible pulse, with a tendency to thrombosis in the large veins.

Etiology - What are the cause of anemia? Reviewing these causes there are two main classes of causes:--

(1) The German view. Post mortem demonstration has shown that the condition of the blood vessels is abnormal, and the majority of writers claim that this condition is congenital if not hereditary. This will make the condition one of malnutrition of the blood-vessel wall suffering before the blood itself.

(2) This view is sometimes called the Clark theory. It represents the English speaking school. Clark has proved that in a large number of cases the modification in the arterial walls is due to absorption of toxic matter from the intestines, i.e., the primary cause of chlorosis is intestinal toxemia. On this he bases the theory that chlorosis is due primarily to the torpidity of the intestine allowing absorption of toxic matter into the blood and thus the degenerative changes in the blood vessel walls, also in the blood itself.

This theory is in part demonstrated by the fact that the most persistent condition both before and after anemia is constipation, the intestines being thrown into a semi-paralytic state. Another evidence of the same fact is that the chief complication of chlorosis is a gastric and intestinal ulceration, either in the simple or complicated form. Gastric ulceration is simply a localized toxemia which is localized in the intestinal walls. The true theory is (1) Primary cause, and (2) Secondary condition.

From the osteopathic standpoint both of these so-called conditions represent conditions that are associated with the development of chlorosis, both theories. Prior to the condition of the blood vessel walls and the intestinal condition there exist a neurosis which is produced in some way by an obstruction or irritation interfering with the nerve supply to the blood system or the intestines or both. Hence, we find lesions involving the blood supply in the (1) cervical, first to fifth, vaso-motor; (2) clavicular; (3) first, second and third dorsals; (4) first and second rib areas; (5) the general circulation, fourth, fifth and sixth dorsals and the intestinal area; (6) tenth, eleventh, twelfth dorsals, second, third and fourth lumbar, visceromotor; (7) Sacral and sacro-iliac lesions. These are the typical lesions that have been found in chlorosis.

Treatment -

(1) Diabetic and hygienic. If there is a severe case the best thing to do is to give the patient the rest cure. Do not allow that patient to work as do many physicians from other schools. Do not give the patient very much to eat while in bed. The food that is given should be in liquid form. After the patient is allowed to get up, i.e., after about ten days, keep the patient as quiet as possible with a little exercise in the open air every day, especially physical exercise for the lungs. After the patient begins to move about give some nutritive food, especially food that is easily digestible, so as to save the digestive juices function. If there is marked indigestion give some predigested food for a few days, e.g., predigest the animal food by the use of pancreatin. The object here is to preserve the juices and not call for those juices after the resting period. When the patient is able to digest food give, after seven to ten days from time when patient gets out of bed, plenty of milk, cream, butter, eggs and some meat in small quantities. Allow the patient to use hot water freely in connection with and before meal.

(The dietary by Van Noorden, of the Berlin Hospital). First: Negative - eliminate all sweet meats, pastries, ice creams, etc. Second: Positive - give large quantities of albuminous food and plenty of bread. In the Berlin hospital Van Noorden uses only unfermented bread and free use of bran and gives the patients fourteen ounces per day.

Before rising in the morning the patient drinks one-half litre of fresh milk. The milk is served up in a little tray in small goblets holding about three or four thimblesfull and the patient is allowed to take only one at a time and is required to spend fifteen minutes in taking the whole quantity, the object being to stimulate the gastric juices and the absorption of the milk as a tonic on the mucous membrane. One-half hour after taking the milk the patient is required to arise and take a tepid bath which is gradually changed until the water becomes cold. After the water has become cold and the patient has taken a cold bath he is allowed his breakfast, which consists of a small cup of tea with plenty of cream, two slices of dry rusk toast with a grated meat that has been cooked in a steamer.

Two and one-half hours later the patient gets lunch consisting of all unfermented bread and butter patient can eat, also two eggs either raw or poached, which ever the patient chooses. Preferably raw. Four hours later the patient gets another meal, sometimes the same as the lunch, and sometimes the patient is given one-fourth of one-half litre of milk, and some form of fat, either in oil form or in bacon form. Before bedtime the patient gets milk, bread and butter again as much as the patient can eat.

Exercise that is prescribed is to be taken between breakfast and lunch, and the second lunch and the bed time supper. Walking, physical culture, and gymnasium exercises are also given. One point to be noted in the treatment is that there is no iron to be used in any form.

In the osteopathic treatment the third point to consider is the correction of lesions that may be found preventing the distribution of the vital fluids and forces of body. (4) Secondary to this the other treatment is directed to assisting assimilation. (a) especially to toning up the trophic nerves and lymphatic system; (b) general treatment should be applied to the great vasomotor area in the cervical region so as to effect the whole vasomotor system, also direct treatment to the solar and hypogastric plexuses so as to tone up locally the sympathetic action on the visceromotor side, the blood system.

(5) The specific treatment aims at relieving the overburdened condition of the blood side of the vital processes. This is the field of correction so that when nervous system is freed from obstruction nerve and blood influences may work together in building up the system. The points called for in treatment are --

(a) To equalize circulation of patient by muscular treatment and along spine on both sides looking for deep tender spots, especially in the cervical and upper half of dorsal regions;

(b) With patient on back flexion and rotation of upper and lower extremities followed by extension with jerking movement which should be given particularly to the lower limbs, outward, to free femoral circulation. It should be applied more carefully to the left side than to right side because the long saphenous vein has a more restricted circulation on the left side than on the right side;

(c) With patient still on back place one hand over the scapula while pressing upward with fingers at angle of second rib - raise arm of patient above the head and give a rotatory movement from above downward, applying the same treatment to the third, fourth and fifth ribs, the object being to give a free respiratory action;

(d) With patient still on back apply rotation and extension to the head and neck with jerk at articulation;

(e) Give vibratory treatment quite vigorously to the spleen;

(f) Place patient on face, begin at eighth rib and apply strong and deep pressure with thumbs and press close in the spinous processes, pushing muscle tissue outward and upward from spinous processes. Continue this down to lower dorsal region and also through lumbar region, follow it by articulation of spine on both sides in same region.

(g) With patient on back apply strong inhibitory treatment and then strong tapping treatment over the path of the abdominal aorta following it into the iliac regions and also over the supra-pubic region. Give this treatment three or four times in succession. The object here is to stimulate the circulation to and through the pelvic field.

This is also applied in cases of suppressed menstruation with marked success.

P E R N I C I O U S A N E M I A

Here we have a disease where the reduction of the red blood corpuscles becomes excessive without any sufficient and known cause. That is the chief reaction in pernicious anemia. on the red blood cells. In pernicious anemia the reaction is from bioplasm to protoplasm. The disease is marked by ---

(1) Gradual loss or wasting of tissue, the progressive waste being slow;

(2) The only evidence the patient gives of the disease is a progressive debility and progressive weakness. Among other conditions (3) accompanying the weakness is the affection of the spleen, which is sometimes-enlarged and sometimes diminished;

(4) There is extreme palor, representing exaggerated vasoconstriction, and shortness of breath, characteristic venous murmur found in connection with the jugular vein, also asthmatic symptoms due to lung conditions;

(5) Very much impaired digestion.

This type of the disease is found principally among males from 24-30 years of age. Sometimes it is found in children as a hereditary condition. The disease is found endemic regions in Germany and some regions in parts of Switzerland, also found in some parts of the middle south in this country. It is produced by or exciting cause is imperfect hygiene, dietetic and climatic conditions.

In some cases it is found in the female sex (1) following parturition or (b) accompanying the menopause. It is also found in some cases along with the intestinal parasitic diseases or following severe hemorrhages.

The most common cause is increased disintegration of the blood excited by toxic elements which are produced in the intestinal field. The skin becomes yellow colored or like the color of a lemon., the fat of the body becomes yellowish, but the body itself is seldom emaciated. This is a toxemic condition.

Pathology - The muscles become bright red colored and there is extreme fatty degeneration of the muscles, of the heart, liver and spleen. The heart cavities become smaller and the quantity of blood in the heart is lessened while the heart muscles become flabby and of a pale yellow color. The ganglion cells of the sympathetic system are also degenerated and sclerosis develops in chronic cases in the posterior columns of the cord, associated with lymphatic tropay. Frequently we find ecchymosis of the skin and mucous membranes, enlarged lymphatics and dark brown discolorations of the marrow of the bones due to pigment by blood in marrow field.

Dyspnea and fainting are common symptoms, are vasomotor conditions. Great ringing of the ears, another vasomotor condition, sometimes oedema of the eyes, face and feet, epistaxis and intestinal hemorrhages, kidney disturbance in all cases, the urine is of low specific gravity, presence of uric acid and urine is of a dark color which is due to presence of pigment. In some of the urine epithelial

Treatment- This disease represents from the osteopathic standpoint -- (a) a pathogenic condition of the vaso-motor part of the nervous system; (b) a condition in which the blood has lost its characteristics as a tissue and has become largely, if not altogether, simply a fluid.

I. In treatment, from dietetic and hygienic standpoint, employ the same principles as in the treatment of chlorosis.

II. In the osteopathic procedure the (1) point is to examine very carefully the cervical region, also upper dorsal on the left side of the spine, lesions in this case are usually on the left side. Correct any lesions found.

(2) Look particularly to the ribs also on the left side, especially second to fifth ribs, also the two floating ribs, here hyper-sensitiveness is very typical. The lesions that are found are lesions of tension on the ribs - a drawing out of the ribs from the sternal end producing an anterior bulging of the ribs, and frequently an overlapping of the ribs. These are cartilage or ligament lesions.

(3) Stimulate locally the spleen, there is partial loss of function of the spleen, and also the lymphatic glands in the neck.

(4) Stimulate the kidneys locally at spine, visceromotorily, second and third lumbar. Also pressure and vibration over the last three ribs and pushing up the fingers beneath the ribs to bring pressure on the kidneys themselves.

(5) Strong stimulation of the blood circulation, beginning at the centers for the superficial circulation, located at the fourth and fifth dorsals.

(6) Stimulate the respiratory action. The best method for doing this is to lay patient on back. Put your hands at an angle to the ribs, beginning low down, and work up, having the patient breathe deeply while you pull arm of patient over head.

(7) Do not allow patient deep breathing too strenuously as hemorrhages might be produced.

(8) In the diet of patient after fasting period give patient as nearly as possible a thorough proteid diet. Best form of that diet available at present is Horlick's food. In this food all the carbohydrate elements are eliminated.

L E U K E M I A

Here we have a chronic disease in which there is an increase in the white blood cells and a corresponding decrease in the red blood corpuscles, causing corresponding certain -- (1) resultant changes in the shape and size of corpuscles; (2) we also have nucleated and degenerated changes red cells.

I. The principal changes are first the lessening of the amount of hemoglobin;

II. The enlargement of the spleen;

III. Enlargement of lymphatic glands;

IV. Enlargement of the medullary portion of the bones.

This means that leukemia is a disease affecting the blood forming function. In anemia we have the affection of the blood destroying function.

This disease is found most commonly in the male sex from 20 to 30 years of age. The onset is gradual.

(1) The first physical sign of the condition is abdominal enlargement, general, with extreme localized pains in the splenic area. Here we have passage from general to particular.

(2) There is great physical weakness, dyspnoea, hemorrhage.

(3) We also have oedema. -- Sometimes the hemorrhage takes place spontaneously in the internal portions of the body.

Etiology - The cause of the increase in the white blood corpuscles is primarily the reaction to the lack of disintegration, i.e., the failure in the blood cycle is primarily on the disintegration side. This is why the spleen comes in first. This is due principally to the splenic condition, also the kidney and heart conditions. The enlargement of the spleen prevents the normal changes that should take place in the spleen. When the spleen becomes enlarged it presses aside the intestines, up against the diaphragm which may be the cause of heart failure in some cases.

One very common symptom is sharp, shooting or cutting pain in the region of the spleen which is caused by the enlargement of that organ and its pressure on the nerves which lie in its surroundings. Sometimes there is shooting pain in the spleen itself which is due to abnormal stretching of the splenic structure caused by enlargement. In some cases there is abnormal venous humming, associated with this we find vomiting, dyspnoea, palpitation of the heart, accompanying this is oedema. Oedematous condition is greatest in the left limb due to circulation and anatomical defect. - After this there is a rise in temperature up to 104 and then going down very irregularly. The same irregular characteristics are associated with the pulse which is at times weak and at other times strong.

Treatment - From the dietetic and hygienic standpoint the patient should live an out-of-door life in a climate that is free from dampness and atmospheric moisture and should have plenty of food, fatty food, which is easily assimilated. After the system

begins to assimilate on a fat basis, begin to diet largely on proteid food, with liquid - Horlick food.

(2) In the osteopathic treatment give the patient thorough circulatory treatment.

(3) Local treatment to the spleen to reduce the enlargement also vibratory treatment in the spinal area corresponding to the spleen, also friction over the cartilages and ribs.

(4) Keep the intestines in the spleen reflex field open also the kidneys. Give strong kneading and vibratory treatment along from right side to left side.

(5) In case of pain give strong inhibition at the lower dorsal area, eleventh and twelfth dorsals, especially on left side.

(6) Thorough manipulation of the lymphatic system, beginning with the center for the receptaculum chyli, at first, second and third lumbar.

(7) Give strong vibratory treatment of the liver.

(8) At and after this stage control the excessive diarrhoea that comes on periodically. Treat it as a vasomotor diarrhoea by strong inhibitory pressure at the lower dorsal, eleventh and twelfth dorsals.

(9) Look out for lesions within the spleen area and lymphatic areas, also vasomotor, second to sixth dorsals.

In all stages of leukemia treat at least once a day.

H O D G K I N ' S D I S E A S E

(Lymphocythemia).

Here we have a granulomatous disease, characterized by the proliferation of tissue, primarily in the blood field and secondarily by the enlargement of the lymphatic glands, i.e., lymphatic proliferation and lymphocytosis. Secondary to this there is enlargement of the adenoid tissue. The third change is the progressive development of the oligo-cythemia with a slight increase in the leucocytes. The fourth change is development of tumors in connection with the adenoid tissue.

This is the neoplasm stage and represents the net result of lymphocytosis and leucocytosis localized in -- (a) tonsils; (b) cervical glands; (c) axillary glands, and (d) inguinal glands.

The disease is principally found in the early part of life. It predominates almost exclusively in males.

So far the known cause of the disease is associated with the internal secretion field from the side of cause. This makes the disease primarily both to the blood destroying and blood forming fields. The lesions are found from the osteopathic standpoint in connection with the lymphatic system, especially the nerve supply from the vasomotor and trophic standpoint.

Etiology - The disease comes on without any known cause, sometimes following skin diseases, e.g., syphilis, which is explained by the fact that syphilis affects the lymphatic system. It is also found secondary to catarrh to this Hodgkin's disease representing the toxin of the blood and especially the lymph, the exhaustion being produced by some previous type of disease.

(1) The first symptom is the enlargement of the glands, especially in the neck and then following to the glands in the inguinal region and less frequently the axillary glands. In some cases it affects the tonsils primarily. The enlargement is painless at first, developing at first on one side and then developing under the jaw to the other side.

(2) In most cases the hyoid bone becomes enlarged. The enlargement is freely movable under the skin.

History - The enlargement persists for years, or even only a few months, and then all at once it suddenly begins to increase in size, the growth taking place very rapidly. One gland merges into another gland, as they increase in size, until there is simply a large mass of hardened glandular tissue, then the enlargement spreads to the other tissue glands of the body. The enlarged glands in some cases are soft and in other cases they are hard. There is always great tenderness whether the gland is hard or soft. In some cases it develops suppuration, abscess formation, or both take place.

Pathology - (1) Originates in gastro-intestinal field representing a primary toxemia, then passes to the lymphatic system; (2) the spleen is the secondary field and is always enlarged; (3) adenoid tissue growth is found in the intestines; (4) The thymus gland begins to develop abnormally and sometimes grows to be of great size. It is at this stage that there is a febrile temperature which is somewhat irregular.

History of Hodgkin's disease ---

- (1) Local, in the intestinal field as a toxemia;
- (2) General, involving the lymphatic system;
- (3) This becomes local.--The spleen and certain lymphatic glands are from a local to a --
- (4) General disease.

Symptoms - The onset of the real Hodgkin's disease from symptomatic side begins with this febrile temperature. This indicates that the disease passes from the local to the constitutional form and the patient gradually becoming weak. In some cases there are no constitutional conditions until the patient has a spell of general physical debility. When he becomes pallid and weak, marked by dyspnoea and cough which lead to a sudden termination. The local conditions in Hodgkin's disease are due to local pressure from the enlargement. There is an impairment of the function, e.g., cervical gland anemia by the pressure on the carotids. Cerebral congestion is produced by pressure on the jugular vein in the neck. Cardiac weakness may be due to pressure on the pneumogastric nerve on the right side. Difficult deglutition or mastication may be due to pleural or peritoneal effusion. Pericardial effusion and pericarditis may be due to pressure on the veins.

- (1) One marked symptom in the disease is the presence of murmurs in connection with the heart, venous side.
- (2) Another symptom is dyspnoea which is due to pressure from the enlargement of the trachea.
- (3) Other symptoms are inequality of the pupils in size and action, nervous system.
- (4) The bronzing of the skin is caused by pressure on the liver, spleen or pancreas, or all three of these organs; while the jaundiced condition is due to pressure on bile duct.

The course of the disease is said to be from six weeks to eighteen months. Recovery is said to be rare, because the patient becomes exhausted and gradual weakness causes death. In a great many cases the patient does not die from the disease itself, but from a complication, e.g., nephritis, fatty degeneration may be found any place in the body, heart, lungs, liver, etc. The marked condition after death must not be confused with what is found before death.

Treatment - The primary lesions here are found in the lymphatic area involving the muscles or bones, sometimes both, especially in relation to the upper part of the body, the head in particular.

The most common secondary lesions are found at the middle and lower dorsal, this representing vaso-motor, i.e., reaction of the original cause.

(1) The first point in treatment is the correction of lesions found. The disturbance is on the gastric side of the lymphatic system. In gastro-intestinal toxemia stimulate by articulation in lower cervical and upper dorsal, lower dorsal and upper lumbar regions to increase the secretion of lymph.

(2) Treat thoroughly the cervical region, especially along those transverse processes in that region found anterior so as to reach the lymphatic areas. Also see that the clavicles are normal and freely movable. Give lymphatic treatment and treatment for elimination of toxins.

(3) Give rhythmic treatment - alternate stimulation and inhibition - in the splanchnic area. Relieve all contracture of muscles in the liver and splenic areas.

(4) Give thorough treatment to the organs affected, also over the solar plexus.

(5) Vibrate and treat rhythmically the glands, especially the lymphatic glands in the neck and axillary region, or those glands involved.

(6) Establish thorough elimination.

(7) Hodgkin's disease is worse and in many cases fatal where there is a catarrhal constitution. In this case treat the catarrhal condition if such be the case. In the treatment of the lymphatics always attempt to up the exudate or toxins that are contained in the blood. This is expressed by - (a) the glands overfunctioning; (b) then the glands enlarge, and (c) we have hypertrophy or hardening of the glands. Look after these.

8 Place the patient on a simple diet. Eliminate all fat.

9 Circulatory treatment ---

(a) General treatment - stir up all over;

(b) Superficial circulation;

(c) Rotation of extremities.

10 The gastric disturbance is secondary as an intoxication. It is this intoxication that causes hunger, thirst, vomiting, bronzing of skin, diarrhoea or diarrhoea alternating with constipation.

Headache is similar to uremic headache, consequently in dealing with these symptoms deal with from toxic side of elimination. In palliating --

(a) Lesions in lower dorsal - vasomotor condition and

(b) Lesions in lumbar region - lymphatic conditions.

ADDISON'S DISEASE

Here we have both a local and constitutional disease; It is a type of anemia, analogous in some respects to Hodgkin's disease. It is characterized by --

1 Disturbance of the functioning, primarily, of the suprarenal bodies, i.e., and over-functioning of these. Here we have a loss of force without loss in flesh. The overfunctioning of the suprarenals causing by reaction the overfunctioning of the sympathetic system, consequently the cerebro-spinal nervous system is weakened so that it is unable to control the sympathetic nervous system, and consequently the chief disturbances we have to meet in Addison's disease is a functional separation of the cerebro-spinal and sympathetic nervous systems with exaggeration of the sympathetic nervous system and all the functions it controls, i.e., visceromotor.

2 The progressive loss of strength without a corresponding loss of flesh. This is where people look strong and yet are not strong, muscle tissue does not waste away but turns into a non-tonic state.

3 Gastric disturbances by reaction accompanied by vomiting spells, thirst, and the bronze discoloration of the skin.

4 Chronic congestion and inflammation of the suprarenal bodies. This is the reaction finally from the general to local. The disease makes its appearance from 25 to 45 years of age, and is found exclusively in the male sex. Some writers claim that it is secondary to tuberculosis. It is really a toxicosis. It always follows some injury to the spinal cord and spine itself.

Lesions -- There is tenderness and misplacements through the dorsal region from eighth to twelfth, representing a vasomotor condition. Similar conditions are found in the upper lumbar region, representing a loss of vasomotor control.

Like Hodgkin's disease it comes on without any known cause or source, progressing gradually until physical weakness, exhaustion on slight effort, impaired digestion, intestinal tenderness and periodic vomiting.

This symptomatology indicates that it is an intestinal disturbance primarily. It is at this stage that there is a discoloration of the skin. After this there are gastric symptoms very marked, i.e., the cycle of the disease is very marked --- (a) intestinal toxemia; (b) reaction to adrenals or blood destruction; (c) secondary reactions to gastric disturbances.

There is frequent vomiting with extreme prostration. There are also neuralgic pains, especially in the lower limbs, headache, tight dragging pains in the lower lumbar region. The pulse becomes weak. Discoloration of the skin becomes marked, especially on exposed surfaces of the body, e.g., the mucous membrane - all these are secondary toxic symptoms. In some cases there is no discoloration. In these cases the vomiting is persistent and

intense. The disease has a course extending from six months to three years. In some instances the patient dies quickly. In these cases there is no discoloration.

Pathology - 1 Original stage in pathology is sympathetic nervous system neurosis. 2 Reaction of neurosis on some particular secreting function. This depends on the constitution. Addison's disease is frequently complicated by tuberculosis. In these cases there is --

I. Congestion; II. Inflammation and degenerative changes of the ganglia of the sympathetic nervous system; III. Degeneration and tubercular condition of the suprarenal bodies; IV. Atrophy; V. Degeneration extends to the sympathetic ganglia of the solar and hypogastric plexuses. - There is an increase in the white blood cells and a decrease in the red blood corpuscles. This is the reaction of the adrenal disturbance on the blood as a tissue.

Etiology - 1 It is claimed that it is a nervous disease. The abdominal sympathetics being involved by a sympathetic neurosis while the suprarenal bodies are involved secondarily to the neurosis of the sympathetic system. This is proved by the fact that primarily in the disease there is an atrophic condition of the vasomotor system, involving the tenth nerve in its connection with the solar plexus. This accounts for the loss of strength without loss of flesh. Strength is cerebro-spinal, while nutrition is sympathetic in origin.

2 Due to loss of function in the suprarenal bodies in connection with this internal secretion. All the evidence we have points to (1) as true. The evidence is: -- 1. There are many cases of Addison's disease in which the suprarenal bodies are in a perfectly normal and healthy state. 2. In all those cases where the suprarenal bodies are normal in this disease there is a diseased condition of the semilunar ganglia and tenth cranial nerve in some of its sympathetic relations, i.e., in relation solar plexus. This is sufficient to explain functional interference with the suprarenal bodies. 3. The large majority of cases of Addison's disease indicate pathological involvement of the abdominal sympathetics, i.e., solar plexus or sub-ordinate plexuses, indicating that the sympathetic disturbance is the primary cause of the disease. 4. On this basis we can explain the loss of strength without the loss of flesh. -- To this view the cerebro-spinal condition in Addison's disease and all cerebro-spinal symptoms being acquired, through or secondary to the sympathetic disturbance, i.e., the primary pathology and symptoms are sympathetic. The secondary pathology and symptomatology is cerebro-spinal. The fatal reaction is when the cerebro-spinal disturbance reacts again on the sympathetic system, e.g., gastric, gastro-intestinal disturbances in the form of crisis, representing a full reaction in Addison's disease. - Two typical disease - Locomotor ataxia and epilepsy.

Treatment - The primary disturbance is one involving the abdominal sympathetics. In the suprarenal bodies we find two distinct parts - the cortical and the medullary portions.

1. The cortical portion is the vascular part consisting of blood vessels surrounded by mesoblastic cells.

2 The medullary part in origin is nervous. The tissue is the same as the sympathetic ganglia tissue. In fact, in early life the medullary part of the adrenals is a mass of sympathetic nerve tissue. It is a great reservoir center for the collection and of the sympathetic nervous system in early life. Its origin is in epiblastic cells. This medullary part is the point that is affected pathologically in Addison's disease. The reason that the skin is the seat of bronzing is that the skin originates embryologically also from the epiblastic cells. The most liable in Addison's disease are those who have had some skin disturbance, whether hereditary or otherwise. This lays the foundation for the theory that all diseases originate in the sympathetic nervous system, and it is generally supposed that it is a constitutional weakness of the sympathetic nervous system. Transference of disease from sympathetic nervous system to cerebro-spinal nervous system is a change in the disease from local to constitutional form.

1 The first point in the osteopathic procedure in the treatment of Addison's disease is to give special attention to the splanchnics. This is the area for osseous and ligamentous lesions, fifth to twelfth dorsals, it is also the area for the origin of the vaso-motor constrictor nerve supply in connection with the adrenals. Here we must pay attention to both sides of the spine.

2. Pay attention to the pneumogastric and phrenic nerves, especially in the sub-occipital articulation, atlas and axis regions; articulatory treatment at the atlas and axis, inhibitory treatment along the sheath of the carotid arteries to reach the tenth cranial nerve. Apply treatment to the phrenic nerve at second, third and fourth cervicals and down to the fourth and fifth dorsals, also ninth and tenth dorsals through diaphragm is also called for. The reason for treating these nerves is that they are cerebro-spinal nerves, which represents the trophic side of control over the adrenal bodies.

3. Treatment applied to the solar plexus directly by pressure and vibration. This ought to begin thoroughly because the medullary portion is really an off-shoot of the solar plexus by development, is very close in structure as well as function.

4. Treat directly in a rhythmic manner by alternate stimulation and inhibition the cervical and dorsal enlargement field. The reason for this is that the brain is the exact homologous of the spinal cord. The medulla is the first part of the spine, the cervical enlargement is the second part and the dorsal enlargement is the third part. The two middle parts of the brain correspond with the cervical and dorsal enlargement, i.e., the dorsal enlargement particularly represents the spinal motor area, and it is treated rhythmically for the purpose of producing a coordinate distribution of the trophic-motor functioning in connection with the internal secretion of the adrenal bodies.

5. Look to centers of superficial circulation, at fourth and fifth dorsals. The reason that the skin is the secondary part affected and in treating the superficial circulation you want to prevent venous stasis.

6. In cases where pigmentation does not take place the venous stasis, hepatic stasis and engorgement, the reaction from the hepatic stasis is found in the intestines or the gastro-intestinal area. This irritation produces vomiting, sometimes diarrhoea and abdominal pains. In vomiting, give strong inhibitory treatment to the venous blood above the clavicle, strong inhibitory treatment to the pneumogastric nerve along the sheath of the carotid artery and deep treatment in the vasomotor area for the stomach and intestines.

Biliousness is controlled by --

- 1 Treatment of intestines by deep inhibition;
- 2 Rhythmic treatment of liver;
- 3 Lower function of gall bladder.

Bilious vomiting is controlled by deep pressure over the pyloric orifice of the stomach.

7 In diarrhoea there is a venous congestion of the whole intestinal tract. Best treatment is strong inhibition at eleventh and twelfth dorsals with patient on face while lifting feet and shoulders alternately, also along with this inhibition give abdominal treatment. Begin with strong inhibitory pressure right over the solar plexus and continue that pressure downward along the path of the colon.

In common diarrhoea you get the best results by strong inhibition at eleventh and twelfth dorsals and a strong kneading of the colon.

8 In abdominal pain, which is also the cause of venous stasis, irritating the sensory nerve fibers of the abdominal walls. Give strong inhibition here close to the spinous processes in the abdominal area of the spine. Follow this by springing and jerking of the spine by the ends of the fingers underneath the spinous processes on either side with the patient on the back.

9 Pay attention to the treatment of the kidneys. Here there is the tendency to retention of urine, i.e., here we have the first of the crisis, viz., gastro-intestinal paralysis. Treatment of the kidneys is called for all the way through Addison's disease. Also treat along the path of the ureters to stimulate free excretion.

10 Diet the patient the same as in a case of leukemia.

G O I T E R

Is a secondary disease. It involves the blood as it is intoxicated. In the development of goiter primarily (1) it represents death of fibrin of blood produced by poison; (2) tends to destroy circulation of blood from vaso-dilator side. Goiter is not classified as a tumor until it passes to the secondary state or stage, i.e., we must differentiate from primary goiter when it is toxicosis, secondary goiter when it is tumefaction.

Goiter is a symptomatic disease (resultant) dependent upon previously existing condition. It is a tumorous development not of the neoplastic order but of the secreting order.

There are three types for discussion -- (1) Simple; (2) Cretenoid, or mucoid; (3) Exophthalmic.

I. THE SIMPLE TYPE - This begins in toxicosis and expresses itself locally by reaction from the toxic condition. The primary enlargement is due to the vascular dilation, i.e., represents an exaggeration of the functioning of the thyroid gland - simple goiter is primarily functional goiter and secondarily an organic or structural condition. In some countries it is endemic, e.g., Switzerland, parts of low Germany and some parts of Canada. In other countries it is epidemic, e.g., some parts of Canada, France, United States and England.

Etiology - According to (1) the old theory of goiter it was caused by or closely associated with the kind of water used by the patient. This theory has been set aside. (2) Another theory is that it is produced by certain wind conditions; (3) From the osteopathic standpoint it represents --

(a) Primarily an exaggeration of the dilator function of the cerebro-spinal system, - (a) first, second and third ribs, sensory from the neurosis side. The lesions are found in (b) the areas of the middle and inferior cervical ganglia; (c) in some cases involving the clavicles, and (d) the twelfth rib, reaction from constriction; (e) in other cases the lower cervical vertebrae from the third down to the seventh, represents vertebral circulation. Sometimes we find the lowering of both the (f) first rib and the clavicle cutting off the venous circulation downward into the trunk of the body. Lesions of the lower cervical are either anterior or lateral or both.

The condition is found most commonly in the female sex, developing at the periodic change of life. It usually affects but one lobe of the gland, sometimes both are affected. In some cases it involves only the isthmus over the trachea. When dilation becomes extreme we have symptoms of pressure in connection with the trachea and the nerves, i.e., recurrent laryngeal, phrenic nerves and the vaso-motor blood supply to the neck, also in contact with the esophagus, affecting deglutition, vomiting, etc.

Pathology - Hypertrophy of the thyroid gland - (a) in the form of a simple dilatation of the blood vessels or (b) it may pass into the state of cystic growth, or (c) there may be calcareous deposits; (d) amyloid deposits in or in connection with

the gland. The great toxic element is in the last two cases and the gland becomes hard, on account of calcification carbonaceous elements. (In this case Iodine only aggravates the growth). In the pathology of goiter the toxic condition usually affects the parathyroids, rather than the thyroid gland. This is probably explained by goiter --

- 1 Overfunctioning of the gland, outside of itself, in parathyroid field.
- 2 Neurosis of the cerebro-spinal or sympathetic system.
- 3 Tumor-formation or accumulation.

The symptomatology field of simple goiter is that of pressure. The thyroid gland lies in front of the recurrent laryngeal nerve and the inferior thyroid artery. Any enlargement of the gland causes pressure on these. The superior, middle and inferior thyroid veins give connection with the internal jugular and innominate veins. There are two superior and two inferior thyroid arteries and a special branch artery that passes up from in front of the trachea from the innominate arteries or arch of the aorta. These arteries are really out of proportion to the veins which establish drainage from the thyroid, the veins forming a plexus on the surface of the gland in front of the trachea. It is in connection with this that we find the venous blood cause of goiter.

The symptomatology is of two types - nervous and blood, because these conditions shut off the nerve and blood supply, especially the recurrent laryngeal and the tenth nerve on either side. The clavicle is affected through the first rib, which is affected through the inferior cervical ganglion of nerves of the sympathetic system and this is the media of involvement of the sympathetic system.

From a physiological standpoint goiter represents an obstruction of the blood supply to and from the gland and this is a subsequent obstruction of the gland and the accumulation of material that is in the gland from congestion and stasis. In simple goiter does not go beyond this stage.

II. CRETINOID TYPE - It is a secondary condition and is due to structural and functional disturbances of the gland and caused by the absence of function or imperfect activity of the thyroid gland, and a tertiary deposit of mucin in the connective tissue. Secondary to these we find abnormal swelling and stasis of the face, tissues of the neck, arms and limbs, which is produced by infiltration of the fascia and connective tissue with mucin. Following this we have physical debility, mental debility, anemia, real body wasting tissues wasting away while the body is increased in size, i.e., the body is like the gland. The primary affection is in the thyroid gland. It is supposed to be due to (1) functional inactivity of the gland, loss of detoxination. Cretinism represents (2) Overfunctioning of the mucous glands all over the body, representing (a) accumulation of mucin and mucinoid substance; (b) infiltration in connection with other soft tissues; (c) accumulation by substitution in the tissue field of mucinoid. (3) The skin becomes hard and dry, the face mis-shaped, the nose in many cases entirely disappears, the hands, fingers become clubby

and spady, the nails and hair become exceedingly brittle and the hair continually crumbles away. The temperature is all the time subnormal and there is great loss of sensibility and loss of muscular tonicity. The urine is exceedingly albuminous, a sign of degeneration, and the patient gradually sinks into a stupor or lethargy. The patients do not live long, 30 to 35 years, become semi-imbecile. Deficiency in nutritive material or substance of mucinoid is the cause. All the organs of the body are interdependent. The waste matter of one organ becomes the raw material of another. In this way the thyroid gland is not able to use the waste matter furnished by the body and this reacts upon other tissues, thus the wasting away.

III. EXOPHTHALMIC GOITER - secondary to simple goiter or tumorous and represents the stage of simple goiter, is accompanied with (2) increased heart and pulse action, i.e., the reaction on these organs sympathetically; (3) Enlargement of the thyroid gland on both sides; (4) protrusion of the eyeball, in some cases the two eyes are involved. Secondary to the above conditions we find - (5) muscular tremors in connection with voluntary movements, i.e., tremors when person attempts to move muscles, i.e., cerebro-spinal modified by sympathetic weakness; (6) nervousness and excitability. This is the reaction of the cerebro-spinal system from the sympathetic system. (7) vomiting and diarrhoea; (8) deficient nutrition, assimilation and wasting away; (9) superficial respiration, i.e., deep respiratory action is suspended. (Never prescribe deep breathing for the tension is too great on the cells of the lungs). We also have (10) cardiac palpitation. This is reaction on the heart.

This condition is found in the female sex during early adult life, twenty to thirty-five years of age.

In the hereditary characteristics of goiter we have primarily nervous depression and anemia which is always associated with a preceding condition of nervous weakness. The direct cause of the exophthalmic goiter is a neurosis associated with the cervical region, medulla and cervical sympathetics, or in some cases the brain.

Lesions - From the fourth cervical to the middle dorsal, affecting the middle and inferior cervical ganglia which innervate viscera and vaso-motorly the eye, heart, thyroid, lungs, (6. and 7. dorsals) secondarily with them the clavicle and first and second ribs. It is always liable to follow an exhausting nervous disease or great excitability. Some claim it is primary in the thyroid, others, incorrectly, i.e., primarily in the heart. The heart symptom is palpitation. It is found lastly in the symptomatology of the disease. In some cases the eye and throat symptoms are not found at all.

Pathology - (1) First stage of pathology is a neurosis of the sympathetic ganglionic system, involving the inferior cervical ganglia. (2) The principal changes that are found in the structure of the sympathetic fibers that pass out from the middle and inferior sympathetic ganglion. (3) The eyeball protrusion is produced by fat or adipose tissue development and accumulation

the accumulation being in the back part of the eyeball which pushes the eyeball out. (4) In some cases we find mucin collected in the walls of the arteries causing a thrombotic change in the ophthalmic artery, and sometimes fatty degeneration of the ocular muscles. (5) The thyroid gland itself is filled up with mucinoid matter and this causes a new development of the gland or a new growth of the gland. (6) We also find dilation of the blood vessels caused by the paralysis of the vasomotor apparatus. (7) There are no distinct cardiac changes in the morbid anatomy except in long continued cases where the heart muscles degenerate and mucin is substituted for muscle substance.

Symptoms - The disease begins slowly and goes on for some time generally without the patient knowing the condition. (1) The first sign is generally palpitation of the heart. It becomes recurrent while the heart acts between these periods just as it does during fright. The heart beat is from 100 to 120 at these periods, normal in the interval. As the disease goes on the heart beat increases to 180 or 200, the heart beat being small as well as rapid, i.e., it beats with an increased force. The heart beat is steady though rapid and the sounds are clear but intensified. In some cases the heart beat is perceptible at quite a distance from the patient. (2) As the disease progresses the heart becomes hypertrophied and there is found in connection with the heart a strong systolic murmur. (3) The arteries are also disturbed, they are hard and pulsation being accompanied by arterial thrills perceptible especially in the carotids. Noticeable in the retina of the eye. (4) The next part to be affected is the thyroid gland which becomes enlarged and very vascular, the enlargement taking place at first intermittently and later continuously. The right lobe is generally first affected, the enlargement being soft and including the arteries which causes a pulsating thrill, also a haemic murmur. (5) In this stage there is the affection of the eye. The eye at first begins to protrude, being simply pushed out so as to provide for the increased amount of fat that accumulates. Both eyes are usually affected, although the left eye is frequently affected by itself.

(6) Following the protrusion of the eye the white sclerotic appears above and below the corners causing the eye to assume a strong fixed aspect. In some cases it causes the eye to stand still without the ability to close the eye. When the eye can be closed when the eye is turned down the upper eyelid continues elevated and spasmodically twitching, indicating incoordination between the eyeball and eyelid.

7. Following this we find inflammation of the eye because the eye does not protect the eyeball. This may go on to suppuration and may slough away.

General Symptoms - In addition to these general conditions, are found, e.g., patient loses flesh, appetite, becomes dispondent; moderate pyrexia is developed, peculiar diarrhoea is found, called nervous diarrhoea, in which the intestinal peristalsis is increased without catarrh. (This is motor diarrhoea). Vasomotor changes. Ringing in the ears; headache, vertigo, profuse

sweating, suppressed and irregular menstruation. At this stage muscular tremors develop in connection with the voluntary movement, also oedema of the thyroid field, which sometimes extends to the feet and hands. At this stage there is a chronic condition extending over a number of years. In some cases it is acute, comes on rapidly and developing quickly, the cardiac and muscle symptoms being most prominent. These are the cases in which recovery is possible. In all other cases there is a gradual deterioration of the tissues producing exhaustion, physical and mental, which cannot be overcome, hence it is incurable.

Treatment - 1. Attempt to overcome or destroy the neurosis by coordination treatment. This means here coordination of the vaso-motor and visceromotor nerve supplies to the eyes.

2. Correct the lesions found in the cervical, upper dorsal, and upper ribs, also the clavicles. Examine carefully the regions of the inferior cervical ganglia and also the middle cervical ganglia fields. Look at the last cervical and first dorsal vertebrae, field, because that is the field where there seems to be a primary obstruction. Look carefully to the muscle contracture causing pressure and through the nerve interfering with the heart action and eyes and interfering with the action of the thyroid glands, visceromotorily, and the vaso-motors to the eye, head and face, second, third, fourth and fifth dorsals.

When both the accelerator and inhibitory functions are interfered with the accelerator function prevails, this is the explanation - (a) of increased heart action; (b) of proliferation of fat tissue in eyes; (c) of the exaggerated dilation of the thyroid. This leads up to the middle cervical ganglion and gives us the accelerator point of connection with the eye, heart and thyroid, irritation or pressure in that region producing dilatation of the blood vessels in the posterior part of the eye which causes abnormal nutrition and fat formation, and also heart acceleration and thyroid enlargement. This indicates that there is a primary table - inferior cervical ganglion and secondary field middle cervical ganglion.

3 Look out for irritating conditions arising from primary lesions in the blood and nerve fields. The second, third and fourth ribs and in some cases the first rib are to be examined, because abnormal condition of these ribs interferes with the nerves to the heart, and with the first dorsal ganglion of the sympathetic which gives us the sympathetic center of ilio-spinal action in relation to the eye. The first rib is also closely related to the tenth cranial nerve and it directly affects both the heart nerves and also the vaso-motor nerves to the coronary arteries, also the blood supply to the thyroid gland nervously through the recurrent branch of the tenth nerve. The tenth cranial nerve is also connected with the superior cervical ganglion and this also gives an explanation of the interference with the eye.

The phrenic nerve is also connected with an involvement of the clavicle and first rib and also the middle cervical vertebrae, third, fourth and fifth particularly. The phrenic nerve affects the secretion of the thyroid gland.

In some cases goiter is of reflex origin, as in connection with uterine disturbances. Note history of patient whether there is a history of pelvic disturbances, if there is, remove that first, then the cure of goiter is easy. In primary lesions in connection with the uterus or its area produces a number of results --

(a) The acceleration of the heart action, reacting on the heart through the blood supply to the uterus;

(b) Reflex stimulation of the vaso-dilators to the thyroids. This takes place by exaggerated dilation anywhere in the body;

(c) Reflex stimulation of the motor fibres to the muscles of the eyeball and eyelids, especially the upper eyelid. The third, fourth and fifth cranial nerves from the muscular field are the motor nerves to the eye-muscles, e.g., muscle incoordination in the eye is one of the great cause of goiter. This reflex also causes increased heart action and that is the foundation of the two conditions, i.e., heart and eye conditions;

(d) In some cases the increase of heart action is caused by gastro-intestinal or liver troubles. Here the pneumogastric nerve being the reflex.

4. Rotation and extension of the head. This depends upon the relation of the head to the body and the object of the treatment is to free those nerves which pass out through the foramina from the cranium down to the trunk. (The best way to treat is to place the two hands on the side of the head of the patient and then give rotation). Along with this treatment or after give strong inhibitory pressure in the occipital region.

5. With the patient in the sitting posture place the thumb at the middle of the clavicle; with the other hand take the arm of the patient, flex it at the elbow and grasp the flexed arm while at the same time pushing outward and backward, applying pressure with the thumb over the clavicle; and then pull the flexed arm at a right angle to the shoulder while still continuing your pressure over the clavicle. Here you get strong tension on the first three or four ribs through the scapula and clavicle releasing the nerves and venous blood supply.

6. Place the patient on the table on back and place a pillow under the neck so as to tip the head backward, then pull the muscles of the neck forward from the spinous processes, gradually increasing the backward tipping of the head. The object is to pull forward, also the trachea and thyroid glands, and recurrent laryngeal nerve so as to release and stimulate the middle and inferior cervical ganglia of the sympathetics.

7. Vibrate over the goiter when it begins to soften, kneading around its base, not over the goiter itself, and do not shake goiter till softens.

DISEASES OF THE CIRCULATORY SYSTEM

THE PHYSICAL DIAGNOSIS OF HEART DISEASES

THE OSTEOPATHIC LESION --

(1) The osteopathic system has added a new contribution to the physical diagnosis by emphasizing the importance of mechanical lesions in the field of the structure and activities of the organism. In order to understand and appreciate the importance or value of such a lesion, we must get a working definition of a lesion. A lesion as we use it, represents any variation the normal in the adjustment of the structural parts of the body or in the correlation of the activities of the organism and modified environment.

In estimating the value of such a lesion in relation to the heart, we must, (1) find out how the existing heart condition affects or modifies the activity of the heart. Here we must distinguish between LIFE, THE VITAL PROCESSES AND THE VITAL ACTIVITIES. Life or vital force refers to the animating principle found in connection with the body in virtue of which the body is alive, not dead. The life is distributed in connection with the different parts and organs of the body. Each part of the body has its own share in the common vitality in such a way that each part or organ has its own visceral life. This separate visceral life, which is a component factor in the general vitality, we call the vital process. Digestion, circulation, respiration, etc., represent individual life processes peculiar to the separate parts of the body and yet subordinate to the general life principle. This separate visceral life depends for its phenomenal manifestation upon mobility. The primary characteristic of all living structures and the special phenomenon of all life processes. Mobility or motility assume special forms in different structures and organs, these forms of the motility represent vital activities. These activities are peristaltic action or rhythmic movement. In the heart we have typically the rhythmic cycle, representing the activities of contraction, relaxation and rest. This is the basis of all physical signs that we find in the field of diagnosis in relation to heart conditions. The apex beat and the cardiac sounds both normal and abnormal, are physical signs relative to the activities. As such, these physical signs are of value in diagnosis and fall under the osteopathic diagnosis. This represents the true value of physical signs.

2. We must find out how the structural portions of the organism, in their normal or abnormal alignment, position and relations affect the heart activities, keeping them normal or making these activities abnormal. Here we find the strictly osteopathic lesion field of physical diagnosis that represent - (a) mechanical pressure; (b) obstruction; (c) irritation; (d) prevention of heart activities and the cardiac vital processes from expressing themselves. As these in turn react upon the

vitality in general, we must interpret the relation of the lesion to the different fields of - (a) the activities of the heart, manifested by physical signs; (b) the vital processes of the heart, manifested by alterations in the circulatory phenomena, either in the heart itself or in other parts of the circulatory field, and (c) the life force, interpreted in relation to the organic life in the rest of the body. Here we have the means of forming a prognosis in the heart diseases.

Facts based on cases - The facts presented here have been gathered from the examination of over one hundred and fifty cases. Along with two other physicians we examined a large number of cases in the Hospitals of London, Berlin and Vienna. Through the courtesy of one of the attending physicians on the staff of Cook County Hospital we were permitted to examine all of the heart cases in the Hospital. This heart clinic presents one of the best collections of cases to be found anywhere in the world in connection with the varying forms of heart diseases. The advantage of such examinations was that we had the records of the Hospital relative to the examination physically and could verify from the lesion standpoint the facts already found in the cases presented in the appendix which were treated osteopathically.

As the following deals simply with diagnosis, these cases are of the greatest value as presenting confirmatory evidence of the osteopathic theory of lesions.

We do not expect to present anything essentially new in the field of physical diagnosis, because this subject has been studied and written upon by numerous eminent diagnosticians. We have tried to reduce to simplicity from the practical experience of examinations, the essential details in the complicated field of heart examinations.

Insurance statistics indicate that one in ten deaths among the insured is due to heart disease. If we find such a ratio among those considered healthy and safe risks, certainly this indicates the importance of correct diagnosis in heart conditions.

In addition to these we present a synopsis of twenty-three cases that we have treated osteopathically.

Preliminary Information - The physical examination of the conditions associated with heart diseases, circulation implies an accurate knowledge of the anatomy of the cardiac areas and appendages, the physiology of the heart's action and possible changes in the fields of structure, function and relation. The physical signs available refer - (a) to the heart muscles; (b) the heart cavities, and (c) the blood vessels. (a) Heart muscle is studied from the standpoint of muscular changes, the only difference of heart and other muscle being in the complexity of the muscle of the heart. The heart is a reservoir, consists of a left pumping organ drawing the blood through the systemic vessels to the tissues and back, a right pumping organ sending the blood through the lungs and back to the left heart. The other organs represents ramifying blood circuits.

We will presuppose a knowledge of the methods of inspection, palpation, mensuration, percussion and auscultation, also an accurate acquaintance with the anatomical landmarks and topographical surface areas. These are points elemental and fundamental to the examination of a patient.

The anatomy of the heart will be sufficiently described as follows; The base of the heart for physical examination represents the line separating the heart from the great vessels at the level of the third costal cartilage - the heart is an articulatory organ - from a point one-half inch from the margin of the right sternum to a point one inch from the margin of the left sternum.

In the mobility of the heart it is suspended primarily from the great vessels. Hence, the fixed point of movement of the heart is the great vessel area, the apical area being the free field. Respiratory changes alter the heart's mobility as well as changes of posture on account of the lung relations to the great vessels and heart relations. These must be taken account of in examination in connection with the thorax.

Physiology of the heart - Here certain important points should be noted? The cardiac cycle includes all the events that occur during complete systolic and diastolic phases. The following schema will present a picture of the heart's cycle, seventy-two cycles occurring per minute, one cycle occurring every eight-tenths of a second.

FIG. I. SCHEMA OF THE CARDIAC CYCLE.

		Auricular Diastole 7/10 sec.		1/10 sec. Auric.	
I	Ventricular systole	I	Ventric. Diastole	I	Systole
II	3/10 sec.	I	5/10 sec.	I	I
I		I		I	I
Normal	Ventric. Contraction	I	Rest of entire H'	I	Auricular
Activ. I	3/10 sec	I	4/10 sec.	I	Contracti
I		I		I	I
Normal	1st sound	I	2. sound	I	Pause
Rhythm	"L U B B"	I	"DUPP"	I	I
I	Systolic murmur	I	Diastolic murmur	I	I
Murmur	Mitr. rig. & aort. obst	I	Aortic regurgit	I	Mitral I Perystalt.
I		I		I	Obstruct I murmur.
Heart	I Apex	I 2nd rib	I 2nd rib	I Apex	I
sound	I	I	I	I	I

Rhythmic Activity -- First sound - A Cardiac cycle - 8/10 of 1 sec.
 Second sound - 72 cycles per minute
 Pause

Time Activity -- Vent Syst. 3/10 of sec.
 Rest 4/10 of sec.
 Aur. Syst. 1/10 of sec.

Each cycle of the heart accompanied by two sounds, the first commencing with the ventricular systole, representing (a) a valvular element due to the sudden tension from the closure of the mitral and tricuspid valves, and (b) a muscular element, depending on the contraction of the muscle fibers of the heart. The muscular element represents the strong booming characteristic of the first sound, lost when the heart is weakened.

The second sound corresponds with the close of the ventricular systole and represents a single element, the valvular, due to the closure of the aortic and pulmonary valves, making it a short, sharp, abrupt sound. Listened for at the apex the first sound is more accentuated while at the second interspace on either side of the sternum the second sound is accentuated.

Pathology of the Heart - As will be seen the valves enter so largely into the cardiac cycle that any disturbance in the cardiac functions involves a valvular condition of some kind. The valves are so constructed that the blood always passes in the same direction and its amount is properly regulated. Hence, valvular defects are of two kinds - (1) the valves may shrink and not close perfectly, producing incompetency or leakage or regurgitation, or (2) the orifices of the valves may be obstructed or constricted, producing valvular stenosis or obstruction; (3) there is a condition called relative incompetency, when the valves are normal, but on account of the relaxation of the orifice to which the valve is attached, the segments of the valves do not meet perfectly and hence there is incompetent valve action.

When valve action is defective there results - (1) the first pathological condition, viz., blood stasis. This mechanically produces dilatation of the walls of the cavity involved. (2) In order to compensate for the defective valve action the muscular walls are required to overwork with resultant hypertrophy of the muscular walls.

Hypertrophy, it will be seen, represents a compensatory increase in the cardiac walls to furnish increased cardiac force in order to cope with an extra amount of work demanded of the heart. During the progress of this hypertrophy the field of disorder is limited to the heart, because the gradual increase of force provided by the increasing muscle is sufficient to prevent any changes in the blood stream outside the heart. (3) But as soon as this increasing force reaches its limit or is checked by nutritional changes, then the heart ceases to be able to meet by compensation the conditions and some other part of the circulatory system manifests the disorder. It is here that the symptomatic changes in other parts of the organism are of special value, e.g., dropsy.

Special Forms of Valvular Disorders - Aortic incompetency is associated with shrunken valve segments, resulting in the driving back of some of the blood through the aortic orifice by the elastic reaction of the aorta, following the ventricular systole. Therefore during ventricular diastole blood is driven into the ventricle from the aorta and the auricle. This causes primary dilation and secondary hypertrophy of ventricle.

The valve orifice is too large or the valve segments are thickened so that the valve does not close tightly.

A long diastolic soft murmur, almost inaudible, heard over the aortic area simultaneous, with strong arterial pulsation, hypertrophy of the left ventricle and a forceful apex beat displaced downward to the left are differential physical signs.

Aortic stenosis is associated with the enlarged and hard valve segments or narrowing of the aortic orifice. Hence, during the systole of the left ventricle, the valve does not open outward into the aorta sufficiently to let the blood pass freely from the ventricle, so that the passage from ventricle to aorta is obstructed. This results in hypertrophy of the left ventricle.

A harsh systolic murmur in the aortic area, at the second right interspace, carried up to the carotids, a strong apex beat, associated with a marked systolic thrill and hypertrophy may be taken as the diagnostic points.

Mitral incompetency is associated with the shrinkage, thickening, rigidity or curling of the valve segments, the thickening of the tendinous cords or the dilation of the left ventricle which prevents the valve from covering the orifice, as in relative incompetency, or in general from the soft, flabby or weak condition of the muscle of the heart, preventing the tonic action of the muscle in relation to the valve segments. Hence, when the mitral valve imperfectly closes, during ventricular systole, part of the blood which should be driven into the aorta passes back to the left auricle.

Hence, during diastole, the auricle received blood from the pulmonary veins and the ventricle. The auricle dilates and later hypertrophies. As the left ventricle also received the excess of blood prior to the ventricular systole, it is also dilated and later hypertrophied. By reaction from the auricle, a static condition of the blood results in the pulmonary veins and the right ventricle, the latter also dilating and hypertrophying. If this continues the tricuspid valve suffers relatively by compensatory reaction and regurgitation takes place to the right auricle which dilates and hypertrophies. This in turn reacts on the venous side of the general circulation, producing a general venous stasis, varicose and engorged veins and dropsy.

Physical Signs - Very forceful apex beat, displaced down to left, a systolic murmur either accompanying or replacing the first sound, heard at the apex or mitral area, and transmitted towards the left axilla, heard posteriorly at the inferior angle of the scapula, accompanied by an accentuated pulmonic second sound and hypertrophy of both sides of the heart may be taken as an indicative of mitral regurgitation.

Mitral stenosis is caused by the constriction of the orificial ring, the adhesion of the margins of the valve segments. As a result of the left ventricle, causing dilation and hypertrophy, reacting as in mitral regurgitation in stasis in the pulmonary veins, dilation and hypertrophy of the right side of the heart and venous stasis in the systemic circulation.

Physical signs - A harsh, purring diastolic sound of the of a thrill, beginning at the close of the second sound and ending with the apex beat, heard during expiration in the third, fourth, and fifth interspaces, accompanied by a rough abrupt perystaltic murmur, heard just above the apex beat, with right sided hypertrophy, and an accentuated pulmonic second sound are typical of mitral stenosis, this latter is found in the later stages where there is venous stasis.

Tricuspid Incompetency is nearly always relative to the left side of the heart. Apex beat is spread towards the epigastric area. A systolic murmur is heard loudest over the xyphoid cartilage accompanied by pulsating of jugular veins and pulsation of the liver in aggravated cases.

Tricuspid Stenosis is relative to changes on the left side of the heart, the reaction producing a thickening and hardening of the valves or the orifice. A perystaltic murmur heard loudest at the xyphoid cartilage accompanied by very indistinct heart sounds are the physical signs.

Pulmonary Incompetency is rare and is associated with hypertrophy and dilation of the right side of the heart. There is very strong epigastric pulsation and a diastolic murmur heard loudest at pulmonary area, second interspace on the left side.

Pulmonary stenosis produces also hypertrophy and dilatation of the right side of the heart. The congenital form is found when the foramen ovale is soft. A systolic murmur heard loudest at the second interspace on the left side is the only sign.

Development of Valvular Conditions. - All heart conditions have some relation to valvular conditions. - The life history of a valvular condition is as follows: - (1) The stage preparatory to compensation. In this case and at this stage no signs of stasis, no changes in sounds, or no enlargement are found.

We are dependent entirely upon the murmurs.

(2) The stage of compensation. The heart contracts like a single muscle and increases by hypertrophy to keep pace with increased activity. Hence, we have the evidences of hypertrophy and the signs of changes in the lungs, arteries, liver and kidneys, as organs that express accessory symptoms to the heart. Hypertrophy is a physical condition in second activity. (3) If the patient lives and the valvular condition still continues there is a limit to the compensation established by cardiac accommodation. The circulation becomes unbalanced and the failure of complete compensation shows itself - (a) in dilation; (b) weakening of the cardiac walls, and (c) neurosis or deficient nutrition, complete compensation would mean death. When from any of these causes compensation fails and saves the life of the patient, venous stasis follows. (4) This marked evidence of this venous stasis or cardiac accommodation is edema.

(5) We have seen that the reaction upon the blood stream is always back through the right side of the heart. Hence, a venous stasis always represents a change in the general condition of the peripheral circulation. This static congestion shows itself - (a) In the increase of pressure in the left auricle, congesting the blood in the pulmonary veins, the capillaries, the pulmonary artery and the right ventricle. This means the static condition.

of the pulmonary blood stream. This explaining dysnoea, bronchial cough, pulmonary oedema and pulmonary hemorrhage. (b) When the right ventricle dilates and hypertrophies, the tricuspid valve suffers relative insufficiency, with regurgitation into the right auricle, an increase of pressure in the right auricle and congestion of the venae cavae.

(6) This explains the engorgement of the liver and the liver pulsation where relative tricuspid incoptency exists. The congestion of the liver reacts on the portal vein and through it we get the catarrhal congestion of the stomach, intestines and spleen are explained with a secondary gastritis, enteritis, ascitis.

(7) Secondary to (b) also to the increased pressure and congestion in the venae cavae are oedema of the lower extremities, cyanosis of the face, fainting, vertigo, the systolic jugular pulse in cases of relative tricuspid insufficiency.

This explains the train of symptoms and the method both of diagnosis and treatment of these symptomatic conditions.

The Physical Examination - (1) Inspection and Palpation. -

View the chest anterior, posterior and lateral so as to discover shape, size, pulsations and movements. Pericardial bulging is generally found in enlargement of the heart, especially of the right or left sides.

(a) The Apex Beat - The apex beat is normally palpable at the center of the fifth interpace slightly inside the mamary line and three inches from the central sternal line. Lay down the whole hand over the precordial area to discover the character of the beat and the direction of its impulse. Then locate it topographically with the fingers following it as far as we can palpate an up and down movement. As the apex impulse corresponds with the systole of the ventricle and because it marks the beginning of systole because of first and second sounds, it becomes the fixed standard for the comparison of all other changes in the heart.

We must take account of spinal curvatures, thoracic deformities in estimating the exact focus of the beat. Horizontal displacement to the left is found in hypertrophy and dilatation. Downward displacement to the left is typical of hypertrophy and dilatation of the left ventricle, downward displacement of the ventricle is indicative of emphysema with hypertrophy, the ribs moving upward, so as to accommodate the thorax to a permanent inspiratory position. As the lungs enlarge and expand the heart is pressed further down, the hypertrophy of the right ventricle producing the extreme vertical downward displacement.

In diagnosing hypertrophy it is important to consider --

(1) the thickness or thinness of the chest walls; (2) the strength of the impulse, a strong heaving impulse with displacement of the beat being symptomatic; (3) in dilatation following hypertrophy the strong heaving impulse giving place to diffusive expansive, weak impulse. This is especially so in dilatation of the right ventricle.

(b) Pulsations, where found - Among the general pulsations, aside from the apex beat, those associated with the heart are located below the level of the third rib, e.g., (1) a pulsation in the first or second interspace on the right side may be due to very strong heart action, if it is systolic in time and non-diffusive; (2) pulsation in the third, fourth and fifth interspace on the right side, close to the sternum, is associated with a dilated right auricle; (3) pulsation in the third, fourth, fifth and sixth interspaces to the left of the sternum is associated with hypertrophy and dilation of the right ventricle. (4) Pulsation in the fifth interspace on the left side is the apex beat of a hypertrophied right ventricle; In the sixth, seventh and eighth interspaces on left side represent apex beat of hypertrophy and dilation of the left ventricle. (5) Epigastric pulsation, if it is systolic, indicates hypertrophy or dilatation of the right ventricle. The force of this pulsation is best felt by inserting the fingers under the ensiform cartilage and pressing upward. (7) Pulsation of the liver is felt by palpating anterior and posterior with the two hands, the pulsation of the entire liver parallel with the apex beat.

(c) Thrill in Heart Diseases - When a pulsation becomes vibratile it is called a thrill and is caused by blood passing over a rough surface or through a constricted orifice or through an incompetent valve. The palpable feeling of a thrill has been compared to the feeling of the fingers on the neck of a cat when purring. It is really a vibration of the chest wall. It occurs intermittently during a certain part of the cycle.

Most commonly we find - (1) a systolic thrill accompanied by cardiac impulse - (a) in the apex region in mitral regurgitation;

(b) at the lower part of the sternum in tricuspid regurgitation; or dilatation and hypertrophy of the right ventricle;

(c) above the second costal cartilage on the right side in aortic stenosis, above the second costal cartilage on the left side in pulmonary stenosis.

(2) A diastolic thrill above the second costal cartilage on the left side in pulmonary insufficiency just before the cardiac impulse.

(3) A perystaltic thrill in the region of the apex beat indicates mitral stenosis.

(4) A frictional thrill is found in pericarditis palpated all over the pericardial area. The frictional thrill is parallel with the grating sound over the ensiform cartilage area. It is more marked in chronic pericarditis just below the ensiform cartilage palpated at its strongest at third or fourth interspaces.

(3) The Value of Percussion - Percussion takes place to locate the heart and to determine its size and shape and the extent of the cardiac dullness. Percussion is at its best only of relative value, its value depending largely on the ability to detect very slight variations in sounds. The cardiac borders should be localized, if possible by percussion.

At the lower border it is important to differentiate between the cardiac and hepatic dullness. The cardiac dullness is primary and secondary, Primary, when the heart is in close contact with the chest walls; secondary, where the deep dullness of the heart lies beneath the lungs. The primary dullness covers a triangle extending from the fourth costal cartilage along the left border of the sternum and along the side from the level of the fourth costal cartilage down to a point on the sixth rib in the parasternal line. This is of importance only in emphysematous conditions of the lung. - To summarize the points of value in percussion --

(a) Increased cardiac dullness downward towards the left, accompanied by a strong apex beat, which similarly displaced and pointed, indicates hypertrophy and dilatation of the left ventricle;

(b) Increased cardiac dullness towards the right with a rounded apex beat indicates hypertrophy and dilatation of the right side of the heart;

(c) Increased cardiac dullness both to the right and left, with a rounded apex beat and diffused apex beat, indicates hypertrophy and dilatation of both ventricles.

(3) The Value of Auscultation - The purposes of auscultation are to determine the rhythmic condition of the heart and the character of the cardiac sounds whether normal or abnormal, because auscultation has to do - (a) with heart mobility; (b) with heart articulation from the rhythmic side.

The two cardiac sounds really represent the closure sounds of the four valves, the pulmonary and tricuspid more superficial, the aortic and mitral deeper and because they are related to the ventricular systole in its beginning and closing.

In using the stethoscope or phenendoscope. We generally use the ear alone without any aid, a correct order to follow in auscultation is ---

(1) Place the stethoscope or phenendoscope or eard over the general valve area, so as to listen to all the valve sounds at the same time, viz., at the sternum and third and fourth costal cartilages, with the center at the third interspace close to the sternum;

(2) Over the mitral valve area at the apical region of the heart;

(3) Over the aortic area, at the second interspace to the right of the sternum;

(4) Over the pulmonary area at the second interspace to the left of the sternum;

(5) Over the tricuspid area at the lower end of the sternum over the ensiform field.

To outline this draw a line from the second interspace to right of the sternum to the apical point, another line for the second interspace to the left of the sternum to the ensiform cartilage. Here we have two lines intersecting at the sternum - the point of intersection represents - fourth costal cartilage, aortic valve, mitral valve, pulmonary vein and tricuspid valve.

(4) Changes in the Sounds of the Heart - Among the clinical modifications we find --- diminution and weakening.-

(a) of both sounds, found especially when the cardiac muscle is weakened in dilatation of the heart and muscular tissue degeneration;

(b) Of the first sound, found in weakening of the cardiac muscle. This is of the greatest importance, because we find that the first sound consists of muscular and valvular elements. Hence, when the heart muscle becomes greatly weakened the first sound is so changed that it becomes a soft and snapping, i.e., a typical valvular sound with the muscular quality of sound lost;

(c) Of the second sound found in cases of weakening of the individual valve sounds, e.g., aortic weakening is found in aortic weakening is found in mitral stenosis and to a lesser degree in mitral regurgitation, on account of the diminished pressure of the blood in the aorta preventing the closure of the valve and the rigid segments preventing the vibration sound on closure. The pulmonary valve weakening is found as a typical sign in the cases of tricuspid incompetency and right ventricle hypertrophy, dilatation or degeneration.

(2) Increase in length and intensity - (a) of both sounds found in cases of thin chest walls, in the cardiac neurosis, cardiac hypertrophy increasing the muscular character of the first sound, i.e., loss of softening valve sound;

(b) In the first sound heard at the apex in hypertrophy of the left ventricle, the muscular element prevailing and in dilatation of the heart, especially of the left ventricle, the valvular element prevailing and also in mitral stenosis, in this case a sharp thumping or pounding sound being present;

(c) Of the second sound, the aortic sound being accentuated in hypertrophy of the left side of the heart; the accentuation of the pulmonary valve sound in mitral regurgitation and mitral stenosis and hypertrophy of the right ventricle.

(3) Reduplication of the first or second sound, chiefly the former, in mitral stenosis, This is probably due to the asynchronous closure of the valves.

(4) Modification in the Pause - (a) where the long pause following the second sound is obliterated, each sound being followed by a short pause of equal length. This is found in great cardiac weakness and in collapse or in diseases where compensation has entirely failed;

(b) Exaggeration of the long pause or diastole found in weak heart spasmodically over-active but in an exhausted state. This is analogous to the Cheyne-Stokes breathing in respiration.

The Murmurs of the Heart - (5) Substituted sounds or murmurs. These are caused by changes in the valve, the orifice, the blood pressure or blood force, in fact any abnormal changes in the heart itself. Most cardiac murmurs are caused by some disease of the valve, stiffening or shrinking of the segments or resulting in dilating of the orifice. Hence the failure to close in valvular insufficiency, failure to open in stenosis, the roughening of the valve or contiguous structures, stretching of the orifice resulting

from dilatation of the heart. These cause the blood stream to and give origin to murmurs.

Physics teaches that the molecular vibration of a fluid driven from one field to another through a constricted medium produces a murmur. Murmurs of the heart depend upon the conditions - (a) of the force of the blood streams; the condition of the blood itself, and (c) the condition of the valves.

These murmurs are always timed in relation to the cardiac cycle. Systolic murmuring beginning during the first sound, diastolic murmurs during the second sound, and peristaltic murmurs preceding and continuing up to the first sound. In order to time these murmurs keep the fingers on the apex impulse or the pulse while listening to sound.

The murmur itself may be - (a) soft or blowing in connection with regurgitation, or (b) harsh in stenosis. If a soft or blowing murmur replaces the valve sound, then structural changes of the valve are indicated, e.g., in aortic regurgitation the murmur will take the place of the aortic sound. If the murmur, however accompanies the valve sound, little or any structural change in the valve exists.

The important point in localizing the murmur is to find out its point of maximum intensity, e.g., when the point of loudest intensity is the apex area, the murmur is produced by the mitral valve, pulmonic murmurs are found loudest in the second left intercostal space, aortic murmur in the second right intercostal space or third and fourth left interspaces and tricuspid murmurs around the ensiform cartilage. Functional murmurs distinguished from structural diffuse the sound around the second left interspace. Apex systolic maximum intensity, transmitted to axilla and inferior angle of left scapula indicates mitral regurgitation. Apex diastolic maximum intensity mitral stenosis, maximum intensity at second left or third and fourth right interspace indicate aortic regurgitation, a systolic maximum intensity in some areas aortic stenosis.

The four murmurs on the right side of the heart really represent but one, that is of importance, tricuspid regurgitation, resulting from an overactive right ventricle that produces by way of compensation a tricuspid leakage, Here we have a maximum intensity systolic murmur to the left of the ensiform cartilage, with a pulsation of the liver and venous oedema, indicating relative tricuspid incompetency.

If several valves seem to be involved we require to trace out carefully the murmurs at the different valves and compare them with the cardiac times. Each murmur has its own time of transmission that must be traced out and satisfactorily explained. The post mortem signs indicate but one diseased valve, the other valve or valves being involved to relieve the tension by a relative or compensatory leakage. The three common forms of such leakage, are - (a) relative mitral regurgitation to relieve aortic regurgitation; (b) relative tricuspid regurgitation to relieve a mitral incompetency, and (c) mitral or aortic regurgitation accompanying stenosis. This reduces the valvular lesions to a very simple point, viz., (a) presence of an aortic, or (b) mitral valve lesion.

In the case of murmurs the blood stream as it passes from a constricted channel is thrown into vibration. In some cases the projecting valve segments may be set in vibration by the fluid. These conditions, either singly or in combination, produce the murmur. These vibrations tend to travel in the direction of the blood stream as in the carotid murmur of aortic stenosis. In regurgitation the vibratile sound is driven back by the recurrent stream and reflected through the cavity.

The non-structural murmurs are associated chiefly with the low specific gravity of the blood as in the anemic murmurs. They are heard as a soft blowing sound in the pulmonary area and as a humming sound in the veins. If there is enlargement of the heart it is significant of dilatation without hypertrophy. Functional murmurs in general represent a dilated condition as the conus arteriosus, the reaction of the cardiac contraction upon the lung borders overlying the heart. Nearly all these functional murmurs are systolic, the point of maximum intensity being the second left interspace, diffused and transmitted to the axilla and the angle of the left scapula. The sound is soft and blowing and are best heard after a full respiration.

The structural murmurs, on the other hand, represent marked hypertrophy or dilatation and indicate structural changes in the valves. They may be found in any part of the cardiac cycle, associated with alteration of the second sounds at the base of the heart and static conditions of the blood outside of the heart.

The value of these murmurs beyond this is of questionable importance. At times the combinations of these murmurs of different kinds is a significant of specific conditions, but they are not of differential value.

Aside from the congenital changes in the heart and unrecognizable effects of endocarditis, rheumatism and valvular weakness of which there are no signs during life, heart diseases represent, physically, (1) a deformity of the valves, or (2) a weakening of the walls of the heart and resultant weakening in force. These are the joints to be elucidated by the physical examination so far considered. The osteopath may question the value of these physical signs. We do not think he can, because physical inspection and the percussion and auscultation of the heart and cardiac areas brings out these physical conditions placed there by nature as signs of the normal or abnormal condition of the heart. Just as head's law uses the superficial as a test of the deep, so physical diagnosis uses the manifestations of the working of the heart.

(5) The Field of Structural Maladjustment - We must not, however, stop with these physical signs. The heart is a vital organ in an adjusted organism. It occupies its place in the anatomy of the human body, sustains certain relations to the other parts of this anatomic mechanism and performs, certain functions in common with all the vital processes of the organisms.

Vitality, Vital Processes, Lesions - Life represents certain objective manifestations of vitality. There is a certain vital force that expresses itself in connection with the many vital processes. If this vital force is unobstructed in its process

distribution and organic manifestation; and if the cooperation of these vital processes and organic activities is perfect, then the physical is completely adjusted. Structures are coapted and articulated to give expression to the vital force, and to allow the vital activities to unite in the perfect expression of vitality. The changes in this vital expression as distinguished from the vital force are produced by structural lesions and then these vital changes represent a state of disease from the side of expression distinguished from the vital force side, the lesions are entirely structural. This diseased condition is maintained by the continued maladjustment of normally coapted parts or articulated structures.

Physical integrity from the side of expression means adjustment and the lack of physical integrity from the side of expression implies maladjustment. This field of expression in connection with disease represents the original contribution to the field of physical diagnosis furnished by the osteopathic system. It is applicable to heart diseases just as it is to any other form of disease.

Most heart diseases are valvular and the majority of the valvular conditions depend on some form of endocarditis, because endocarditis represents the original condition of the heart from the pathological side. Among the causative factors in this endocarditis we must place - (1) rheumatism; (2) excesses, whether in eating, drinking, working or living; (3) inflammatory conditions of the arteries, the kidneys and the liver; (4) specific infections, like gonorrhoea and syphilis; (5) among the other causes are over-exercise, resulting in muscular strain, causing valve leakage, distension of the orificial structures, degeneration of the muscle substances, inflammation of the substance of the valve segments, adhesion of the valve leaflets, calcification of the segments of the orifices, these in a general way, these are factors which represent modified physiological processes that result in pathological structures ultimately resulting in the organic lesions of the heart.

It must be remembered, however, that an organic lesion of the heart may be in any of the three stages of development already described. Hence, when someone says, organic lesions of the heart cannot be cured, he is talking nonsense, because he evidently does not know that certain stages in the organic conditions are much more simple than lesions found; other organs which are readily amenable to osteopathic treatment.

The heart as an organ and its component parts are subject to all the influences resulting from maladjustment of the tissue structures through which the vital processes take place or express themselves to the media of these vital processes are the nerve supply and the blood, these represent important factors in cardiac expression.

In the Field of Physical Lesions - (a) Cardiac Innervation.
The cardiac nerve supply represents - (1) the intra-cardiac ganglia distributed over the heart and receiving in turn their nerve supplies from (2) the sympathetic system from the superior, middle

and inferior cervical ganglia, distributed through the cardiac plexus; and (3) the pneumogastric nerve along the superior and inferior cervical cardiac branches and the thoracic cardiac branch distributed through the cardiac plexus; (4) the great centers of vital process heart action are located in the medulla, where co-ordination takes place with other vital processes.

The heart cycle takes place under the direct influence of the intra-cardiac ganglia, physiology having demonstrated an inherent intra-cardiac rhythm. (5) Distinguished from this inherent rhythm of the single cycle the regulation of the successive cycles and the component phases of the single cycle depends upon and is the result of the antagonistic and yet harmonizing action of the pneumogastric and sympathetic cardiac nerve systems, ultimately subject to the balancing inhibitive control of the medulla. This inhibition action while centralized in the medulla originates in the heart itself and represents the depressor nerve system. Depressor nerve originates in the endocardium. Any incoordination or maladjustment in these nervous systems and in the different media of bones, muscles, articulations through which the nerve supply passes must have an effect upon the heart detrimental to normal action.

(b) Cardiac Blood Supply - In the circulation of the blood we must take account of the heart muscle, irrespective of valvular conditions, the pumping heart function being an important one. The heart is a double cycled organ with thick ventricles for pumping the blood in relation to the return of blood through the vessels. No two individuals have similar hearts or blood vessels. The direction of the blood in movement is from high to low tension. Hence, ventricular action represents always the greatest force and the highest tension in the circulation cycle. This force meets and overcomes the peripheral resistance of the capillaries, but before such a meeting can take place the blood must pass through the arteries under elastic tension of the arterial system. The elastic tension of the arterial system is produced by and controlled by vaso-motor system. To maintain the normal pressure of the blood because the elasticity of the arteries must continuously yield to the accommodation of an amount of blood thrown out of the ventricle in systole equal to that which passes to the capillaries during the succeeding diastole of the ventricle. Hence, changes in the arterial pressure is the balance or balancing process in the cycle, depends equally upon the continued reaction between the force of the heart and the capillary resistance. The balance of blood in the body depends on the arteries and this depends on the vaso-motor system parallel the innervation side with the deep glossopharyngeal nerve. This is dilator function.

The blood distribution to the different organs and structures is regulated largely by the vaso-motor system, representing constrictor and dilator nerves with the connection in the medulla, the spinal cord and the sympathetic ganglia. Hence, the normal heart condition depends upon vaso-motor adjustment and this is modified by changes in the muscles, bones and articulations of the cervical, dorsal and thoracic regions. Incoordination in the

nerve and blood-supply would undoubtedly predispose to congestion, atonic conditions of the heart muscle, insufficient drainage causing toxic deposits, rupture of the minute valve leaflets, eating away of tissue substance, etc.

Basing ones generalizations upon the particular cases we have presented, we feel justified in concluding that the removal of physical and mechanical conditions under our treatment will guarantee results in many cases that could not be gained by medication, principally because of the mechanical nature of the disturbance.

(c) Lesions Found in Heart Diseases - (1) Lesions. Physiology has taught us that certain centers are closely associated with the cardiac activities. Osteopathy has demonstrated that certain points along the spine, in the adjustment of the vertebrae, the ribs and the different parts of the thorax, have a special significance as centers of pathological expressions in the case of interference with or changes in the heart activities.

Among the latter points we find the following -- (1) cardiac failure, first and second ribs, depressed sternum and cartilages, first and second cervical, first to sixth dorsals, straight spine from posterior upper dorsal; (2) valvular disturbances, second to fourth dorsals and corresponding ribs, third to fifth cervicals, first and second cervicals, fifth rib on left side; (3) alteration in the cardiac rhythm, third to fifth cervicals, and fourth and fifth dorsals, superior cervical ganglion from the sympathetic side, seventh cervical to third dorsal, spinal accelerator nerves; (4) vasomotor disturbances, second to fifth dorsals, first to fourth cervicals, sterno-mastoid muscles, rectus capitis anticus major muscles.

(5) Among the lesions found in general cardiac diseases, those we find most commonly are:-- (a) first to third C., also fourth to seventh C., muscular, articular and osseus. These lesions seem to affect the heart, either through the pneumogastric or sympathetic nerve supply to the heart; (b) upper two dorsal vertebrae and corresponding ribs, articular, osseus, muscular lesions through the direct connection between the spinal centers and the cardiac ganglia; (c) lesions involving first to fifth ribs, left especially on the left side; (d) lesions of the clavicle, with or without the first rib; (e) lesions involving change in the thoracic case as a whole, e.g., rickety thorax; (f) in the diaphragm representing the base of the thorax; (g) lesions in the expansion of the lungs, especially in the upper half of the thorax, i.e., lesions secondary in the lung tissue to some other condition, especially toxic absorption of lead, pleuritic changes involving intercostal tension or rigidity, especially in rheumatic.

The lesions of the first significance are the spinal lesions, either muscular, osseus or articular. Lesions of the first to fourth C., any or all of them, of the rectus capitis anticus major muscle, interfering with the cervical sympathetics. As the sympathetics represent the visceral life of the heart, i.e., the accelerator function, the result in case of those lesions the tendency to revert to childhood conditions. These lesions also become the media of the vaso-motor influences that are ab-

normal, such lesions are of marked significance. Spinal lesions in the upper dorsal directly interfere with the vaso-motor influences, particularly in their relation to the spinal centers, i.e., vaso-motor control over the circulation in the spinal center field. These lesions disturb the relations of the visceral life of other organs of the body, through the splanchnic nervous system, and react on the heart in a tertiary way, the important reactions of the heart to the solar plexus through the upper dorsal nerves, this also reacts on the general superficial circulation in the entire periphery of the body, with the net result - disturbance of the rhythm of the pulmonary circulation.

The rib lesions are of great importance and are perhaps the most common lesions found, not in the heart diseases, but in all heart complications. Here we differentiate from the heart diseases and the heart complications, because of the direct mechanical effect they have upon the heart. The most frequent rib lesion is that of the third to fifth ribs, jointly or separately, the reason for this is that this is the rib area, as this is the valvular area and the apex beat region, because mechanical interference of the third, fourth or fifth ribs are liable to interrupt - (a) the rhythmic activities of the heart, and (b) the co-ordination of the activities of the two cavities. The first, second and third ribs are also frequently involved, interfering with the direct nerve communication between the spine and the heart, i.e., here we have the direct spinal nerve field. Such lesions may also interfere with or interrupt the sub-clavian circulation and even mechanically irritate or depress the great blood vessels from the heart producing a cardiac reaction.

(6) Theory of Lesion Action - The lesions we found in the above cases, may act if heart or circulation are abnormal, in one of two ways - (a) As already stated the vital force is something that we cannot reach directly, neither can we increase or decrease it. The vital force expresses itself through the different vital processes which come to manifestation in the case of the heart, i.e., in its visceral life, sympathetic nervous system. This visceral life represents the cycle with all its phenomena of sounds - blood circulation, contraction, relaxation and rest. This cardiac life, cardiac in its nature, is physical and mechanical in its expression and in the media of communication between this special life form and the life forms of the other organs and of the brain and spine as the centers of neural force, trophic influences and nutritive processes. Hence, the mechanical side of the heart relations may be disturbed - (a) directly by a rib or thoracic lesions, or (b) indirectly the nerve communications between the heart and the neuron centers being either modified or interrupted. Physiology has taught us, and osteopathic principles confirm it, that the mechanism of spinal articulation structure, of the thoracic as a case and the musculature attachment have an important influence upon the nerve communication, really determine the nerve distribution and the expression of the vital force in the cardiac field. Hence, the various lesions are liable to produce changes representing four types - (a) those

that produce a mechanical irritation; (b) those that directly inhibit, i.e., rhythmic action; (c) that pressure upon, and (d) destruction of these nerve connections. As this is regulative of life in the heart, it is also diagnostic of diseased conditions in the heart.

(3) The Theory Explaining Heart Lesions - What explanation then can we offer in regard to these lesions? How can they be diagnostic of alterations in the vital life processes of the heart?

The nerve connections represent the communications between the structure and life of the heart on the one side and the general body structure and body life on the other side. To be normal, the cardiac life must be adjusted to, in harmony with and properly co-ordinated with the life of the rest of the body life. The physiology has claimed that the heart has the inherent life force of its own. What physiologists means here is that the heart as an organ and the muscle of the heart as a structure has its own vibrability. This does not mean however that the heart or the heart muscle has its own life. However true or otherwise that may be and if true it depends on the coordination of the antagonistic muscle structures and this coordination in turn depends on the correlation of the cerebro-spinal and sympathetic nervous systems. The heart could not long survive, if out of sympathy with the vital force and the life of the rest of the body.

Hence, the nerve connections represent - (1) the regulation of the cardiac life and all its phenomena in the cyclical sense; (2) the mechanical expression of the general vitality in the field of the processes of the cardiac life, and (3) the medium of establishing inter-relations between the cardiac life processes and the life processes of the rest of the body. This means that cardiac life consisting of a series of processes depends on the nervous systems from their force and because the most can be claimed from the cardiac life is that it is the expression through a particular structure of the vital life of the organism. The explanation of the lesions, is that these lesions cut off or interfere with the vital relations of the heart as an organ of expression and the nervous systems as the field of the vital force.

(1) Cardiac Inhibition - The pneumogastric nerve with its center in the medulla represents the natural phenomenon of inhibition in relation to regulation, expression and medium. Lesions in the upper cervical region as far down as the fourth cervical interfere with the medulla centers, through the cervical sympathetic brain, the superior cervical ganglia, or through any of the posterior spinal nerves in the upper cervical area, first to fifth. Such lesions affect the medulla center and particularly the cardiac inhibitory center which stands out at the head of the great centers located in the medulla, are very important. Physiological and osteopathic experiments have demonstrated that a strong irritation of the pneumogastric nerve - (a) retards the action of the heart, (1) by slowing its beat; (2) increasing both the systolic and diastolic phases of the cycle; (b) diminishes

the systolic force by lessening and prolongs the diastolic reaction, with a resultant weakening of the muscular action of the heart; (c) the net result of this is, in relation to the circulation, the diminution of the amount of blood passed through the heart and secondarily slowing down the systemic circulation, the net result of these being increased flaccidity of the ventricular walls, with diminished tone; (d) the tendency to dilation of the ventricular cavities is due to the slowed circulations secondary to the atonic musculature.

This means that the irritative lesion of the pneumogastric, kept up for some time by irritative interference with the media, viz., the upper cervical vertebrae and the soft tissue attachments, would cause - (a) permanent slowing of the heart; (b) permanent diminution in the volume of blood thrown through the heart; (c) permanent diminution of heart force; (d) permanent interference with the systemic circulation; (e) atonic and trophic conditions of the heart muscle and consequently hypertrophy and dilatation.

As there is a balance or equilibrium normally between the two sides of the nerve mechanisms. If the inhibition of the pneumogastric is carried to the point of shutting off all normal restraint, the accelerator function becomes exaggerated. This would certainly result in serious detriment to the heart, because experiment has demonstrated that the complete division of the pneumogastric results in the atrophy of the muscle of the heart because the tenth cranial nerve is the trophic nerve.

The pneumogastric, as we found, sends its nerve communication through - (a) the upper cervical; (b) the inferior cervical; (c) the thoracic cardiac branches; (d) through connection with the superior cervical ganglion to the heart via the cardiac plexus and (e) through the fourth and fifth dorsal sympathetic ganglia. Hence, lesions of or interference with these media of communication may be found at the - (a) first to fourth C.,; (b) fifth to seventh C.,; (c) first to fifth D.,; sterno-mastoid muscles, rectus capitis anticus major muscles, the clavicle, first two ribs; (e) fourth to sixth D. rotations, in relation to the ribs.

(2) Depressor Nerve in Relation to the Heart - Depressor is accessory to the pneumogastric nerve, in fact, forming a part of the trunk of the pneumogastric. It represents the emergency inhibitory function in relation to the heart, tending to balance the heart when everything disturbs the nerve equilibrium. In itself it is an afferent nerve, sensorily stimulated by impulses originating in the heart through the endocardium. These impulses are communicated along the depressor path to the medulla center, secondarily the cardio-inhibitory center, affecting reflexly the vaso-dilator function by an inhibition of the medulla center of vaso-constriction and acting upon the periphery - (a) in the abdominal blood field through the splanchnics, and (b) on the general periphery through the segmental vaso-dilators epinal nerves. The net result is the lowering of the blood pressure plus lessening peripheral resistance, diminution of arterial tension and relieving the laboring heart by drawing away from it the excess of blood.

Why is there a depressor nerve? What is its use? If the pneumogastric is the cardiac inhibitor what is the use of an accessory inhibitor? The pneumogastric goes direct to the heart and therefore functions indirectly in relation to the heart, hence the inhibitory function of the tenth cranial nerve consists of a sudden change rhythmically, produced in the blood pressure keeping time with the cardiac cycle. The depressor functions of the entire chain of vaso-motors and hence its lowering of blood pressure represents a gradual change but secondarily designed to relieve heart difficulty by bringing together the two extremes of the circulation, viz., the heart and the capillaries, through the diminution of peripheral resistance and the relief of a laboring heart. This diminution of function affects the cardiac cycles and also arterial tension. Nature thus provides a dual form of relief to the heart, the normal relief being given by altering the cardiac cycle, the emergency relief by altering the cardiac cycle, and fortifies the rhythmic cycle of cardiac life by double fortresses to protect this great vital center.

This explains the lesions that we find affecting the depressor function. The depressor nerve accompanies the sympathetic from the heart, establishing communication - (a) with the first dorsal ganglion, and (b) uniting with the trunk of the vagus at the annulus of Viussens, at the level of the subclavian artery.

(1) Hence the important lesion is at the head of the first rib and its articulation with the spinal vertebrae, also seventh cervical and first dorsal, the clavicles and the soft tissues contiguous.

(2) Lesions in the splenic area may affect the depressor nerve through the splanchnic blood system, causing - (a) a direct inhibitory dilation primarily in the abdominal blood field, reacting upon the heart to slow its action through the blood stream. This, if kept up, would permanently alter the blood current, lessen pressure, diminish heart force, lower the heart beat and tend to dilation of the ventricles. Here the heart beat would be slowed.

(b) A direct irritative lesion in the splanchnic area would exaggerate the constrictor function through the sympathies. This would react upon the heart to diminish the functional value of the depressor nerve and prevent the heart from doing its work in cases of undue strain, tension or overwork from being checked. The net result would be an unstrained heart beat, accelerating heart action without any check. This explains why the splanchnic field, viz., the stomach and intestines particularly exert an influence upon the heart that is frequently very injurious. Any action of the stomach or intestines that will produce and keep up a static action or condition of the blood or even an over-rapid circulation of the blood in the abdominal field, will react upon the heart. The same is true of the pelvic

(3) Sympathetic Lesions in Heart Diseases - These are frequent. This is explained by the fact that each cervical sympathetic ganglion sends a branch to the cardiac plexus. The sympathetic branches and both sets of these branches communicate with the sympathetic ganglia, below the cranial level may be found, therefore, (a) affecting the superior cervical ganglion, e.g., at atlas, axis and third cervical, because the superior cervical ganglion communicates with the upper four cervical nerves; also contraction or rigidity of the rectus capitis anticus major muscle in connection with which the ganglion is located and through which its communicating branches pass; (b) affecting the middle cervical ganglion by fiber branches with the fifth and sixth cervical nerves. Hence lesions of the fourth and fifth cervicals vertebrae may affect the ganglion and its branches; (c) affecting the inferior cervical ganglion which communicates with the seventh and eighth spinal nerves (cervical). Hence lesions of the fifth to seventh cervical vertebrae and the first dorsal and head and neck, first rib in its articulation with the spine may affect this ganglion or its branches. Muscular or vertebral lesions affect the spinal branches, because the nerve branches pass out superior and posterior to the head and neck of the rib. Hence, upward displacements of the head and neck of the first ribs will affect the spinal sympathetic branches, because these sympathetic branches lie against the neck of the rib. Twisting or a movement of the rib away from its spinal articulation, increased tension at the curvature of the rib or increased angularity of the rib will affect the sympathetic branches, because the sympathetics lie in relation to the anterior neck of the rib.

The sympathetics represent the accelerator function in relation to (1) regulation; (2) expression, and (3) medium of inter-relation. By the stimulation of the pneumogastric nerve before it is joined by the sympathetic fibres, i.e., above the level of the superior cervical ganglion, we get simply inhibitory results. By stimulating the cervical sympathetics or the tenth cranial branches in relation to the sympathetics, the heart beat is increased in force and frequency, strengthening the systole and shortening the diastole. These sympathetics have been traced from the union with the pneumogastric trunk along the short sympathetic path in the neck, through the first sympathetic ganglion connected with the first dorsal spinal nerve, through the annulus of Viussens, the second ganglion connected with the second dorsal spinal nerve to the third ganglion connected with the third dorsal spinal nerve. From this point these fibers pass by the ramus communicans to the third dorsal spinal nerve by the anterior root of which it passes to the spinal cord. The accelerator fibres therefore arise from the anterior roots of the second, third and probably fourth and fifth spinal dorsal nerves passing up the sympathetic chain to the first dorsal ganglion of the sympathetics, thence along the annulus of Viussens which is the tenth cranial nerve to the inferior and middle sympathetic ganglia and from thence to the heart. Hence, lesions

in the upper dorsal vertebrae and the corresponding ribs, i.e., second to fifth dorsals, thence of fourth to last cervical, and especially the first rib - those generally found from the sympathetic side.

Stimulation of these accelerators produce - (a) increased frequency in the heart beat; (b) increased force in the systole; first in the ventricle, later in the auricle; (c) increase in amount of blood passed through heart; (d) increase in muscular volume and force of the heart.

An irritative lesion in some of these sympathetic regions - (1) will produce a permanent increase in the frequency, and (2) force of the heart beat, and (3) result in hypertrophy.

An inhibitory lesion in these same fields will operate by -

(1) cutting off the normal accelerator impulses; (2) will cause deficiency in heart force and energy, and (3) slowing of the heart rate without any change in structure of the heart.

Cases Demonstrated - One of the common lesions in heart diseases is the contracted condition of the spinal muscles in the upper cervical region, in the sub-occipital region, in the inter-scapular area, particularly on the left side. We also find rigid conditions of the ligamentous articulations in the same areas, especially at the fourth and fifth D. and the corresponding ribs.

We examined two cases of mitral regurgitation - (1) In the one female, aged 23. We found rigid sterno-mastoid on left side, atlas lesions and anterior, fifth, sixth and seventh cervical posterior, depressed sternum, bulging of fourth, fifth and sixth ribs on left side, anterior upper dorsal, very sensitive, and depressed cartilages from ensiform appendix laterally to the left. By relaxing temporarily all of the muscles and pushing the chest forward by pressure in the sixth and eighth dorsal fields. with the patient on the back, using the closed hands at the spine in the interscapular area, the regurgitation was entirely overcome. This demonstrates that the thoracic vertebrae, rib and muscle conditions of rigidity and displacement maintained the heart disturbance.

In the second case, male 24 years of age, we found the history of an apoplectic sunstroke, followed by paralysis of the left arm, which occurred five years previous to the examination. Left arm was dislocated at shoulder, left scapula entirely displaced, inferior angle overlapping spine, superior spinal angle pushed up above the level of the clavicle. Neck was rigid, atlas and axis to left, three next cervicals displaced to right so that we could not palpate the left transverse process, fifth to seventh cervicals and first dorsal were so posterior that the head and neck stood forward, second to fifth dorsals very anterior and all the articulations rigid. Here we have the cervical and dorsal vertebrae lesions disturbing the cerebro-spinal nervous system with the result that the mitral regurgitation condition could not be temporarily overborne.

Why do we find these lesions? (1) Probably as a secondary condition to the heart trouble, the heart reflecting to the spine its disturbed condition along its sensory nerve, through the sympathetic and along the posterior branches of first to fourth dorsal spinal nerves. (2) The same condition is reflected along the sympathetic system to the superior cervical ganglion which is frequently if not always found to be sensitive in heart disease; also to the medulla which frequently affects the suboccipital and upper cervical areas. (3) The fourth, fifth and sixth spinal nerves may form a link of connection between the cardiac and aortic plexuses through the medium of the sympathetic system, the third dorsal spinal nerve forming the medium of connection with the vertebrae field, second, third and fourth dorsals, spinal muscles, the ribs and the intercostal structure. Hence the reason why we find frequent rib lesions. These rib displacements in the form of twists, upward or downward movement, or a rotation irritating the intercostal nerve. This explains periodic intercostal neuralgia in these heart cases. These intercostal nerves are anterior divisions of the spinal nerves, distributed through the thoracic wall. Each of these nerves is united with the adjacent sympathetic ganglion through a ramus comunicans. These intercostal nerves therefore are connected through the sympathetic system with the cardiac and aortic plexuses, also the heart by way of the first and second dorsal ganglion. This explains the frequency of the second rib lesions, e.g., angina pectoris.

(4) Lesions affecting the shape of the thorax, contracted muscular conditions and diaphragm lesions may affect the heart in two ways - (1) through the nervous connection, or (2) through the blood supply. The intercostal spaces being supplied by the anterior intercostal arteries, changed conditions of the thorax as a whole or certain portions of it, like the fourth and fifth ribs, because they are the most mobile part of the thorax, seriously directly impair the circulation, forcing the heart to do more than normal in order to drive the blood through the intercostal circulation. In the first case referred to above intercostal rigidity when it becomes so extreme so as to interfere with free respiration, produces faintness, dizziness, at first a very labored heart and then a temporary collapse, indicated by cold extremities, cyanosis, etc.

(5) Diaphragm lesions tend to weaken or impair heart force and action. This type of lesion is directly mechanical in its effect - (a) primarily upon the aortic circulation, (b) secondarily it is nervous in action through the innervation of the diaphragm and heart by the phrenic nerve. The phrenic and pneumogastrics are complimentary to one another. The phrenic originates from the third to fifth cervical nerve and is united with the sympathetic by branches from the middle and inferior cervical and first dorsal ganglia, this branch connection with the sympathetic being established just before it enter the thorax. Another sympathetic connection is established in the thoracic field at the fourth and fifth dorsal ganglia of the sympathetic system, distribution taking place from this field to the inferior vena cava, pericardium and right auricle, all rest of phrenic distribution

to heart and aorta takes place from upper sympathetic,

The phrenic nerve is a motor nerve, the right phrenic establishing its motor function through the sympathetic system and secondary visceromotor, the left phrenic directly from the cerebro-spinal system. motor function, the phrenic nerve being itself a spinal nerve. Hence the two phrenics are in correlation, the left phrenic being the regulator. This places the phrenics in antagonistic correlation to the pneumogastrics, the left pneumogastric operating through and establishing connection through sympathetic connection as a visceromotor function; visceromotion, two rhythms, cerebro-spinal - motor force of heart. The right pneumogastric being cerebro-spinal and also the regulator. This correlation is established sympathetically - (1) by the phrenic nerve at the first and second interspaces on the right side; (2) by the pneumogastric at the third, fourth and fifth interspaces on the left side. This explains, as we believe, the relation of the thoracic cage, the ribs, interspaces and diaphragm, with heart in cardiac diseases.

Here we have an explanation of this frequency of heart disturbances in cases of thorax deformity whether partial or complete.

We will briefly summarize the conditions present in these cases. -- (1) Inflammatory Conditions. (a) Pericarditis. -- Lesions found are rib lesions, especially third, fourth and fifth, on left side, causing direct irritative disturbances of the pericardium, or sympathetic disturbances of the tenth cranial nerve. Lesions of the first and second ribs and clavicle interfere with the subclavian circulation also the intercostal circulation hindering drainage and establishing static pericardial blood conditions. Retraction of the lower half of the thorax and these conditions of the diaphragm press up on the pericardium mechanically thus favoring congestion. Spinal lesions in the area of the sympathetic and vaso-motor nerves, especially second, third, fourth and fifth dorsals, cervical muscular lesions, second to seventh cervicals retard the blood circulation so that the toxins of rheumatism, scarlet fever, measles, kidney affections act as irritations in producing pericardial inflammation. The change in the upper thoracic walls mechanically exerting pressure, chiefly through contraction of the intercostal and pectoral muscles, upon the pericardial sac, producing a venous stasis, effusion, adhesion, etc.

(b) Endo- and Myocarditis. - Here toxic irritants enter the circulation of the endocardium and heart muscle, secondary to some infection or contagious disease. Then the circulation to the endo- and myocardium is weakened by irritative lesions affecting the cardiac nerves, the cardiac plexus, e.g., atlas and axis, lower cervical and upper dorsal lesions, especially mechanical disturbances, traumatism or strain in the field of the upper dorsal area. These lesions lay the foundation for weakened nutritive and vital conditions.

(2) Functional Neurosis. - (a) Palpitation. - The cause is always a neurosis produced by some mechanical disturbance of the innervation. Such lesions as the change in the thoracic shape, lesions in the lower half of the thorax and the individual ribs, downward displacement of the lower ribs, atlas and axis, third to fifth cervicals, second to fifth dorsal lesions, lesions of clavicle and first rib produce an erythema, causing mechanical stasis of the subclavian circulation, irritation of the accelerator nerves, irritation of the medulla, or pneumogastrics, reflex irritation from certain organic areas, like the splanchnic field. The erythema lesions are chiefly upper dorsal lesions affecting the accelerators either by an inhibitory or irritative action, or lesions involving the pneumogastrics directly either spinal or sympathetic.

(b) Angina Pectoris - Represents a functional or symptomatic condition of pain, associated with left rib lesions, first to fifth ribs, also clavicle, interfering mechanically with the heart of the great vessel circulation, or interfering with or irritating the intercostal nerves. Clavicular lesions affect the subclavian circulation, upper dorsal lesions irritate the cardiac sensory nerves, first to third dorsal vertebrae. Lesions involving the phrenic nerve or the brachial plexus connecting the heart pain with the arm pain of angina. The cardiac and brachial plexuses seem commonly involved, inflammatory conditions in the plexuses being associated with sympathetic stasis, coronary engorgement and spinal congestion.

(3) Valvular diseases - These are nearly always associated with some form of endocarditis of the heart, rheumatic toxemia.

In aortic valve conditions we find lesions involving the pneumogastric or sympathetic, lessening the tonic conditions of the heart, such lesions being found in the upper dorsal vertebrae, the upper six ribs, ninth and tenth ribs and diaphragm. In aortic obstruction aortic tension is increased, associated with diaphragm and lower rib lesions, or by obstructive conditions of the arterial blood supply, producing a static condition of the aortic circulation. Sternal conditions of repression also cause mechanical pressure upon aortic circulation.

Hypertrophy and dilatation are really, as we found, secondary conditions. Hypertrophy is generally associated with some valve affection, e.g., obstruction to the lesser arterial circulation, obstructed aortic, pulmonary, intercostal and subclavian circulation. Lesions inhibiting the vagi or accelerating the sympathetic cause an overactivity of the heart and resultant, by hypertrophy.

Dilatation is caused by overexertion, according to a weakening of the innervation to the heart, especially pneumogastric lesions, obstruction to the heart circulation, the intercostal, pulmonary and subclavian circulations.

(4) Degenerative Changes, especially Progressive - (a) in Fatty Degeneration of the Heart - the muscle fibers become transformed into fat substance. Fatty degeneration often follows hypertrophy, the exhausted nutritive and trophic conditions of the heart resulting in degenerative changes. Lesions affecting the coronary arteries through the pneumogastric or sympathetic,

interfering with the action of the cardiac and coronary plexuses produce impaired nutrition of the heart.

(b) In Fibroid Degeneration of the Heart - the fibroid substance is increased at an expense of the muscle fibers. This is gradually increasing as the old age advances, calcification taking place and the deposit of other solid substances causing an accumulation within the heart, that gradually weighs down the heart, so that force circulation through the heart substance is impossible. Here lesions are looked for, primarily in the fields of nutrition and elimination, the lack of these and the failure to correctly balance these causing the specific accumulation. Secondly we find lesions maintaining this weakened state of the heart, in the lower cervical and upper dorsal regions.

These cases demonstrate the possibility of an osteopathic etiology and also prove beyond question that this etiology lays the foundation for the pathological changes. Being in harmony with our view of life, as the physical expression through the anatomical and physiological of the animating life principle, we are furnished with diagnostic points of the greatest value in the cardiac diseases.

(The above - Physical Diagnosis of the Diseases of the heart - was prepared and read before the Minnesota Osteopathic Association at their annual meeting by Dr. J. Martin Littlejohn).
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Diseases of the Circulatory System - Continued.

In the circulatory system we are dealing mainly with the unstriated muscle and with the serous membranes, such as the pericardium, and endocardium, which form the secreting membranes in connection with the blood distribution, in the disease of the circulation the involvement of these membranes represents two stages; (1) Congestion, and (2) a secreting or excreting disturbance or both of these.

The base of the heart represents that portion to which the great vessels are attached. This is located by drawing a transverse line across the sternum corresponding with the upper border of the third costal cartilage, carrying the line one-half inch to the right and one inch to the left of the sternum. The apex is found by a point about two inches below the left nipple and one inch to the left of the sternum. The lower border of the heart lies along the central tendon of the diaphragm. When you locate the apex draw a line slightly curving downward from the apex across the lower part of the sternum, about one-half inch across the sternal line. The right border is formed by the corresponding auricle. The lower border line being continued upward and outward so as to join the right end of the base. The left border is formed by the corresponding ventricle and is marked by a line from the left end of the base curving downward outside the nipple line to the apex point.

In the location of the heart in the thorax, the apex points downward and towards the left, the base upwards and towards the right, the greater part lying on the left side of the thorax. The only portion that lies in the right thorax is the right auricle.

Points to Locate - To reach the heart by puncture there are three points:--

(1) Insert a needle between the third and fourth or fourth and fifth intercostal spaces, close to the sternum. The needle will pass through the lung into the right auricle. This point is located in hydro-pericardium.

(2) Insert the needle at the second intercostal space, close to the right side of the sternum. The needle will pass through the lung tissue as before and enter the pericardium. This point is also located in hydropericardium. We also reach the prominent portion of the aortic enlargement, in aneurism of the aorta,

(3) Insert the needle at the first intercostal space, to the right of the sternum. It will also pass through the lung tissue and enter the superior vena cava, just above the point where the pericardium begins, i.e., just outside the pericardium, this point is located in effusion of the venae com. or where the superior ven. cavae are enlarged.

Valves of the Heart. - I. Aortic valve lies just behind the third intercostal space, close to the left side of the sternum.
II. The mitral valve is the deepest of all the valves, lying behind the third intercostal space, about one inch to the left of the sternum.
III. The pulmonary valve lies in front of the aortic valve, behind the junction of the third costal cartilage and sternum on the left side.

IV. The tricuspid valve lies behind the middle of the sternum about the level of the fourth costal cartilage. This locates all the valves so that by using a stethoscope or phenendoscope and placing it over the sternal end of the third intercostal space on the left side all of the valves lie under the instrument so that the different sounds can be heard distinctly without moving it. When you place the stethoscope in the above position ask the patient to cease breathing.

Heart Beat. - In the male the heart beat is slightly less rapid than in the female in the average case. In females there is on an average from 75 to 80 beats per minute, in the male from 65 to 70. With each heart beat the blood is driven in and out practically through the body. During the systole of the heart -

(a) The ventricles contract;
(b) The auriculo-ventricular valves close;
(c) The blood is driven from the ventricles, into the aorta and pulmonary blood vessels. This causes a column of blood in the aorta and pulmonary vessels to increase, producing a mechanical shock to the blood vessels by the increase in volume, this mechanical shock causes the blood farthest away from the heart to move. The movement of the blood produces a wave which passes along the entire arterial system, causing the peripheral blood vessels to pulsate and producing what we commonly call the pulse.

During the Diastole of the Heart ---

(a) The blood column in the aorta and pulmonary vessels decreases or the blood flows away toward the periphery. The decreased volume causes a small quantity of the blood to re-gurgitate back on the aorta and pulmonary valves closing these valves;

(b) At the same time the auricles are filled with blood;
(c) The auricular muscles then contract upon the blood, the blood volume opening the auriculo-ventricular valves and allowing the blood to flow into the ventricle.

The movement of the heart is primarily an intrinsic, i.e., depending upon the inherent power of the muscles of the heart. This inherent force is regulated by the action of the nerves in connection with the cardiac ganglia. The nerve supply from without the heart is purely regulative. The internal movement depends upon certain nutritive substances furnished to the heart in connection with its nutrition. The regulative action takes place through the cardiac plexus which is made up of the cardiac branches of the pneumogastric nerve. Other branches come from the superior, middle and inferior cardiac branches of the sympathetics, also from the first dorsal ganglia, minute branches from the descending branch of the twelfth cranial nerve, especially in its connection with the superior cervical ganglia.

From the cardiac plexus branching nerves go out to the superficial and deep ganglia and also nerves to the muscular substance to the heart, hence the nerve supply to the heart branches off from the cervical and upper dorsal spine. The cervical and first dorsal sympathetic ganglia, the tenth and twelfth cranial

nerves, also the eleventh cranial nerve through its connection with the tenth cranial nerve and the sympathetic ganglia.

Cardiac Diseases - These diseases are associated with --

- (1) Changes in the physiological functioning, either of the heart directly or reflexly.
- (2) Changes in the anatomical structure of the heart or its appendages.
- (3) Some morbid changes either in the heart or its appendages, or some morbid substance brought to the heart in connection with its circulation.

Anatomically the heart represents a muscular structure or organ suspended in a closed cavity. This means that the heart and its appendages may be involved either individually or collectively, e.g., there may be an inflammation of the external membrane. In either case the membranous surfaces rub together and give a friction sound. In pericarditis there is a characteristic friction sound. The external cavity may be filled with liquid up to an effusion. The substance of the heart may be subject to degenerative changes, such as inflammation, hypertrophy, atrophy, etc. In the inflammatory changes there is most always a toxic condition, the inflammatory exudate acting as a poison.

The great function of the heart in relation to the blood is that of propelling the blood. This function may be altered by changes in the structure of the heart, e.g., increased force of the heart beat is increased by arterial pressure and may be aroused by the change in the substance of the heart. It may be also produced by an alteration in the peripheral blood system. The changes in the nervous mechanism may be found in the medulla in connection with the cardiac inhibitory center in the cardiac ganglia, either intrinsic or extrinsic in the cervical ganglions of the sympathetics. The heart is also subject to a great many reflex conditions because of the close relation between the heart and other organs through the nervous system. To meet these reflex conditions the heart has an emergency inhibitory nervous system, the depressor nerve. It has also a double accelerator nervous system - sympathetic and cerebro-spinal. The object of this is to meet all emergency conditions so that when one is injured the other takes its place. Locate the depressor nerve very particularly. It is carried in the sheath of the pneumogastric. The nerve is stimulated by the modification of the tension in the endocardium. Reach the depressor nerve just above the head of the first rib.

In regard to the examination of the heart the first method is by palpation. This is of special value in determining oedema, fluctuating changes in the heart. By this means you can also determine the nature and strength of the impulse. The apex impulse strikes the thoracic wall at the same time as the systole, before the radial pulse. The strength of the impulse is always increased if the patient is leaning forward. To get the normal pulse and apex impulse lean your patient slightly backward. The palpation of the valves takes place to determine the nature of the valve impulse in connection with the closure of the valve. The general impulse can be heard over the whole pericardial area. The influence of the pulmonary and aortic valves are located best by placing the finger tip at the third and fourth interspace, close to the right and left of the sternum. The impulse of the Auriculo-ventricular valves is synonymous with the first sound

the valve impulse in connection with the closure of the valve. The general impulse can be felt over the whole pericardial area.

The influence of the pulmonary and aortic valves are located best by placing the finger tip at the third and fourth interspaces, close to the right and left of the sternum. The impulse of the auriculo-ventricular valves is synchronous with the first sound of the heart and is best felt at the fourth interspace to the left of the sternum. Palpation is also used to make out a thrill. A thrill is a sound produced by the blood being thrown into vibration as it passes over a rough surface. We may find the thrill either during systole or during diastole. The most common thrill of the heart is found right over the apex. It differs from the apex impulse which is more of a tapping sound.

I. A thrill at the apex indicates mitral obstruction. The blood is passing from the auricle to the ventricle and the thrill is found before the mitral valve impulse, i.e., this thrill is perystaltic. If it is not perystaltic it is not associated with the mitral valve.

II. Another thrill is found at the second costal cartilage on the right side which is caused by aortic valve obstruction. This thrill is simultaneous with the contraction and is called systolic. This thrill may always be felt in the aorta and the carotids. Sometimes a thrill is found in connection with the first sound, sometimes in connection with the second. In the first case it indicates obstruction, in the second regurgitation. Keep these points carefully in mind. In pericarditis there is a frictional thrill all over the pericardial area. It is more marked if the case is chronic just below the ensiform cartilage and is felt the strongest at the third and fourth interspaces.

Percussion. - Here the tapping method is applied. Percussion is used to determine the size and shape of the heart from the dull sounds. Superficial percussion, i.e., very light tapping gives the area of cardiac dullness, especially when the heart is not covered by the lungs. Here the percussion must be very light in order to give the resonance. This area is at the fourth to sixth costal cartilages. Deep percussion gives the area of deep cardiac dullness. Begin to percuss in the upper left interspaces, just above the second interspace and follow this around the area which makes the heart region passing from the second left interspace downwards toward the apex, then upward around the right border of the heart.

Auscultation. - Here we have the use of the stethoscope or phonendoscope for the purpose of finding out the cardiac time relation, i.e., time of systole and diastole. The time occupied by the systole and diastole are equal. By the diastole we mean:-

- (a) The diastole of auricle and ventricle;
- (b) The systole of auricle and ventricle.

During systole there is a contraction of the auricle and ventricle - seven-tenths representing (a) and five-tenths (b) The auricular systole represents one-tenth and the ventricular

systole three-tenths. In using the stethoscope place it over the base of the heart first; at the same time as you are listening to the heart feel the pulse of the patient. You will note at the same time a sound of the systole of the pulse, followed by a second sound during the diastole of the pulse, followed by a short period of silence corresponding with the three changes in the cardiac cycle. During each cycle there are four sounds, one corresponding to each valve. The two systolic sounds are caused by the closure of the mitral and tricuspid valves, followed by the contraction of the right and left ventricles. These sounds are modified by the rushing of the blood along the blood vessels and the pitch is raised by the shock given to the heart by the closure of the valves. All of these elements come into form the little sound.

Diastolic Sounds. - The two diastolic sounds are caused by the closure of the aortic and pulmonary valves and these sounds are produced by the tension on the flaps of the valves. As contraction takes place in connection with the arteries closing upon the column of the blood we have these second sounds which are caused by the muscular contraction of the blood vessel walls.

Systolic Sounds. - These are close to one another in time, because they are produced by the auriculo-ventricular valves. The two sounds, however, are not heard at the same points, each sound being conducted along its own path. The tricuspid valve transmitting the sound through the right ventricle and the sound being heard over the lower part of the sternum, i.e., just above the ensiform cartilage. The mitral sound is transmitted to the surface of the thick walls of the left ventricle and hence it is heard loudest at the apex of the heart.

The aortic sound is heard loudest at the second costal cartilage to the right of the sternum, because the aorta transmits the sound to the surface. The pulmonary sound is conducted to the left side of the sternum and is heard loudest at the second interspace close to the sternum.

Points in General. - (1) The systolic sounds are heard at the apex. Diastolic sounds are heard at the aorta.

(2) The first sounds are systolic and occur at the same time as the apex impulse and precede the radial pulse.

(3) The second sounds always follow the pulse.

(4) The first sounds are followed by the short and preceded by the long pause.

(5) The second sound precede the long pause.

(6) The origin of the first sounds is in a position to make them low, dull and long. The second sounds are high, short and sharp.

(7) First sounds are heard loudest right over the apex of the heart and base of the sternum, and always tend to be transmitted toward the axilla.

(8) Second sounds are heard loudest at base of heart and are always transmitted upward along the sternum into the neck.

The abnormal sounds. - The first is the frictional sound, sometimes called pericardial sound. It is due to the rubbing together of the inflamed surfaces of the pericardium.

The second abnormal sound is the splashing sound, which is due to disturbance of the fluid inside the pericardium.

The third are murmurs. If a stethoscope is placed lightly over a large blood vessel no sound is heard. If pressed down heavily on the blood vessels a sound is heard. This is caused by an alteration of the caliber of the blood-vessels, the sound always passing in the direction of the current. If the fluid is flowing from a wider to a narrower channel and if it is thrown back from a narrow to a wide channel the fluid is thrown into vibration and the murmur will always be heard backward against the current. This indicates that a murmur may be produced by a pressure resulting from obstruction or occlusion.

In abnormal vibration resulting from imperfect closure of the valves the murmurs may be either vascular or cardiac, cardiac when the direction of the murmur is backward, valvular when the direction is forward. The cardiac murmurs always originate at the orifices and are due to - (a) valvular causes in connection with some organic disease of the valve; (b) non-valvular causes are disturbances of the orifices. Most murmurs are due to --

- (a) Nature of murmur;
- (b) Direction;
- (c) Location of the point where it is the strongest.

These three things are to be found out.

Murmurs at the apex are produced in connection with the mitral valve orifice. Tricuspid murmurs are heard either over the ensiform cartilage or at the head of the fourth and fifth ribs. Aortic murmurs are heard at the second costal cartilage or interspace on the right side.

Pulmonary murmurs are heard at the second interspace on the left side.

Nature of Murmurs. - These murmurs may be produced when the valve is open or closed, hence, there are two kinds -- (1) produced at the orifice which normally should be closed but when open allowing blood to regurgitate; (2) occurring when the blood should be passing through orifice normally does not pass through on account of obstruction. Time of murmurs is determined by--

- (1) Sound of heart;
- (2) Apex beat;
- (3) Pulse.

The mitral murmur occurs at time of systole. During this time the auriculo-ventricular valve should be closed if the murmur is heard it will be a backward murmur in connection with regurgitation of the blood into the auricle. If the murmur occurs before systole, during this time the blood should be passing through the ventricle, but when the murmur is heard, there is obstruction and the murmur is perystolic.

Tricuspid murmurs. - Systolic because they are always a regurgitation.

Aortic murmurs may be either - (a) systolic, in which case the blood flows normally from the ventricle into the aorta. On

account of obstruction the murmur is found during systole; (b) Diastolic. In this case the murmur either takes place of several sounds or is heard at the same time as the sound. Normally, the blood is falling back upon valves to close them, abnormally, then the valve is disclosed part of the blood flows back into the ventricles, giving murmur of regurgitation.

Pulmonary murmur - systolic. Always due to obstruction. In all five murmurs - three systolic and two diastolic.--

<u>Systolic:</u>	Aortic obstruction; Mitral regurgitation; Tricuspid regurgitation.
<u>Diastolic:</u>	Aortic regurgitation; Mitral obstruction.

Character of Murmurs - Murmurs or sounds representing rhythms are represented as two-folds:

One musical;
Two interrupted.

If the murmur is rough and of a high pitch it is due to valvular order of disease. If soft and low it is due to a cause producing swelling of valves or closure of orifice by a soft exudation. These are in the nature of humming sounds found in connection with the pulmonary orifice. These murmurs are always low and soft becoming louder and longer when the patient lies down, and another characteristic is that they are never transmitted away from the heart and are always systolic in their nature. Sometimes these anemic murmurs are heard in connection with the jugular vein.

P A I N. - Pain may be produced by over-stimulation, lack of nutrition, mixed type, Pain is of nerve from pure blood. Pain in motor nerve is in connection with nervi nervorum found only in the medullated nerves or nervo-keratin.

The most common type of pain is --

I. Cardiac pain which is produced from within the heart, in the substance.

II. Pain originating outside of heart. The pain - (a) being localized or diffused over the entire pericardial area; (b) in some cases limited to the fifth and sixth interspaces on the left side. These are different types of pain - most heart pains are reflex - (1) Neuralgic type. Here we have the tenderness corresponding with the distribution and exit points of nerves from the spinal column, the pain being mostly felt along the margin of the sternum. In some cases the pain is localized in the axilla, in others at the vertebrae but in this case radiating around the ribs. The best treatment is --

(a) General treatment for raising the ribs;

(b) Strong articulating treatment along the vertebrae, at seat of pain;

(c) If there is intense pain strong inhibition previous to treatment - (a) stimulate circulation of blood through the spinal cord. This is best done by articulating upward;
(b) to reach spinal cord and equalize blood supply.

(3) Pleurodynia - Here we have an affection of the pleural nerves resembling neuralgia or rheumatism, this is an over-stimulation in nature. The best way to relieve this is by - (1) strong pressure, laying the solid hand over the pericardial area and apply strong pressure over the whole area; (2) inhibition over superior cervical ganglion field.

(3) Myalgia - This is found almost exclusively in connection with excessive coughing in a common cold or tuberculosis, also over-stimulation in nature. It is a pain diffused over the entire left side of the thorax. The best method of treatment is by strong uniform pressure over the antero-lateral thorax with inhibition at the spine.

(4) Pleuritic Pain - is found as a result - of pleurisy, due to the inhibition of respiration function. Temporarily the pain can be relieved by pressure between the anterior and posterior thorax while making the patient breathe deeply, at the same time raise and spread the ribs.

(5) Periostitic Pain - found here in connection with disease involving the periosteum of the ribs, causing tenderness and swelling, here we have boring pain. Deal with the pain as you would with a localized congestion and for temporary relief apply strong local pressure over the periosteum field involved. If the swelling keeps up you can only deal with it by bandaging the part. Use free bandage, i.e., place a cushion of cotton under the bandage which will give much better results. Here you bandage around the chest.

(6) Pain found in Abscesses in Tuberculosis - the abscess forming between the pericardium and the inner thoracic wall. To palliate this pain apply strong pressure on the ribs laterally so as to press them out anterior and posterior.

(7) Epigastric Pain - This is found especially in pericarditis., the peculiarity of the pain being that it originates in the epigastric region and radiates upward towards the shoulders and down the arm. To palliate this inhibit over splanchnic plexus.

(8) Aortic Pain - Here we have a special pain found in diseases of the aorta. The pain radiates along the path of the aorta, settles down in the spine at a point where the aorta comes close to the spine, about third dorsal. - (1) Treat this as you would a hypersensitive condition by strong inhibition; (2) gentle articulation of second and third dorsals; (3) keep patient on face.

(9) Aneurismal Pain - due to pressure of aneurism upon surrounding structure. If the pressure is upon bone the pain is boring; in other cases the pain is a dull aching, which is more diffused. The only way to relieve this is by strong inhibition. The most common type of this pain is aneurism of the aorta, this will involve the recurrent laryngeal nerve. The best point to reach this nerve in this case is in the neck on the inner anterior side of the carotid blood vessels, at the level of the thyroid gland.

(10) What is the nature of the cardiac pain? It is due in the first place to some disturbance affecting the rhythm of the heart, e.g., the pain of palpitation of the heart and secondarily, it is due to valvular disturbance of the heart. This is especially

true of the aorta where the cardiac valve is involved - the pain being caused by the increased tension of the aortic walls. Thirdly, the most common cause of pain in connection with the heart is angina pectoris. Here the pain is severe, coming on suddenly, - sometimes in paroxysms. The pain is a feeling as if "the heart were held in a vise", usually extending down into the arm. It is worse at the wrist than at the fingers and sometimes the pain radiates up into the neck. The pathological reasons are morbid anatomy and is said to be found in connection with the coronary artery field, atheromatous or degenerative changes. Sometimes in connection with the aorta and in some cases toxic substances lodging in and affecting either the cardiac plexus or the brachial plexus or both. The pain is usually located in the lower part of the sternum, frequently most intense at the first and second ribs, radiating into the axilla and the neck. The pulse is seldom affected. This indicates that there is a sudden spasm or paroxysm of the heart itself, not affecting the systemic circulation. In a great many cases the brachial plexus is involved. Palpitation is one of the marked symptoms of angina pectoris, the palpitation being due to the fluttering of the heart, which is caused by the intense nervousness - palpitation is followed by the intense paroxysmal pain. The origin of angina is probably a strong inhibition of the nervous system in the cardiac plexus or the brachial plexus field, caused by toxemia. In some cases there is an over-stimulation of the regulative cardiac nervous apparatus. The most common exciting cause of angina pectoris is --

(a) Toxic Substance, hence it is found most frequently in people who use tobacco, morphine, alcohol, etc., and in the female sex of the hyper-emotional type. This is a disease producing toxic substances in the body;

(b) Due to lesions of the fifth and sixth cervical, first to fifth dorsal, second rib, sometimes first and third ribs. In treatment of angina pectoris --

(1) Treat the brachial plexus in the spine and in connection with the first two ribs.

(2) Relieve the pressure of the pneumogastric nerve. The best way to relieve a spasm of angina pectoris is by cutting it off altogether by strong inhibition at the anterior border of the sterno-mastoid muscle on the left side.

(3) Give treatment to equalize the regulative nerve apparatus of the heart, treating simultaneously the tenth cranial nerve and the sympathetic ganglia, especially S. G. on the left side, giving the stimulatory treatment.

(4) The best relief can be given in most cases by raising the first two ribs. The arrhythmic and enrythmic heart is due to nervousness and this is due to irritation. Here, in the angina pectoris we have the intermittent heart beat, the heart beat being interrupted by the dropping out of one beat periodically or not periodically. This is found, e.g., in some of the fevers. In this case you look for the cause ~~of~~ the heart, either

outside of the heart, either in the medulla or in connection with the liver, lungs or the kidney. --

(a) In case the medulla is involved, strong inhibitory treatment in the region of the atlas and the axis and around the subocciput;

(b) Stimulating treatment to the general circulation, especially through the vasomotors in the neck;

(c) Treat pain of heart by strong stimulation at the superior cervical ganglion, especially on the left side;

(d) When the liver and kidneys are involved the condition is to be treated as a toxic one, i.e., as atype of blood poisoning.

(e) Angina pectoris originates primarily in the brachial plexus, the irritation then is reflected to the cardiac plexus, the over-stimulation of the cardiac plexus hence gives pain in the heart, keep away from the heart in treatment of angina pectoris, because the condition is practically one of incomplete tetanus of the cardiac muscle. The condition then must be treated as one of tetanus, viz., to unlock the nervous hyper-stimulation in order to relieve the muscle spasm.

(f) In angina pectoris the right pneumogastric is also often very sensitive - this is the radiation from the left tenth cranial through the sympathetic system, thus giving a from stomach condition in this disease - nausea, vomiting and biliousness.

PERICARDITIS

Here we have an inflammatory usually secondary condition affecting the serous membranes surrounding the heart, It is secondary and is found either in the acute or chronic form. There are three types of this condition ---

- I. Simple Pericarditis;
- II. Fibrinous Pericarditis; sometimes a third type,
- III. Pericarditis with effusion, which is really a type of the fibrinous?

I. In the simple type there is a simple inflammation, the irritation being caused by some toxic elements.

II. In the fibrinous type fibrinous formation takes place following a simple congestion. This may develop into an abscess formation and this is followed by effusion.

A primary inflammation of the pericardium is seldom if ever found. Sometimes it is found in childhood, especially where the catarrhal constitution is present, where a child is exposed to severe cold weather. Pericarditis therefore is nearly always secondary. This secondary pericarditis may be localized. In this case the inflammation passes from the surrounding tissues to the pericardium following, for example, pleurisy and mediastinal inflammation, diseases of the ribs, diseases of the vertebrae, the diseased tissues carrying off an exudate which is carried by the blood to the pericardium. In some cases it follows peritonitis and hepatic abscess, the exudation taking place through the diaphragm.

Pericarditis may be secondary in connection with or to some general disease, e.g., infectious diseases, especially some fevers as scarlet fever, measles, erysipelas and typhoid fever, tuberculosis, septicemia and rheumatism.

In early stages of pericarditis there are practically no symptoms until the condition is well developed and in some cases the development has gone so far that nothing can be done for it. - It is also secondary to Bright's disease, particularly the chronic type of pericarditis. Pericarditis is almost exclusively found in the male sex.

Pathology - There are three steps in the development of the morbid anatomy if it goes through the regular course ---

- (1) Congestion of the pericardium with toxic pyemia or septic absorption;
- (2) Morbid anatomy stage;
 - (a) Plastic or dry stage.
 - (b) Effusive stage. This may be either - (1) serous, (2) fibrous, or (3) hemorrhagic;
 - (c) Adhesion stage. The pericardium becoming adherent to the adjoining structures.

(a) The first stage in the morbid anatomy usually begins in hyperemia, followed by changes in the epithelium, involving the visceral layer;

(b) After this we find exudation, the surfaces becoming rough and the serum being through out and the blood precipitated or the blood being stagnant. The hemorrhage is generally due to rupture or in some cases to paralysis of the vasomotors, causing the blood to pass through the capillary walls? This is due to toxic absorption. This is the stage of crisis, i.e., the patient may recover, or fatty degeneration or toxic absorption may develop.

In the stage of effusion there is the separation of the visceral and peristal layers, exudation taking place between the layers. The exudation forms a gluey substance or becomes pus. If the gluey substance is developed the two layers stick fast together, here we have the beginning of the adhesions and there is a permanent hypertrophy. Here we have the permanent chronic pericarditis.

Symptoms - In a simple case there are no symptoms, hence it is difficult to recognize. In some cases when symptoms are established we find - (1) chills and feeling of dizziness; (2) slight pain at the heart, radiating all over the pericardium; (3) temperature going up to 102 or 103; (4) tenderness all over the heart area, accompanied by dyspnoea, restlessness, sleeplessness, especially at night; (5) in the stage of effusion the symptoms depend on the diffusion of pain; (6) usually there is a stitch in the chest, accompanied by nausea and vomiting, feeble pulse, delirium, difficulty of speech and difficulty in deglutition. In this case the recurrent laryngeal nerve is involved; (7) in some cases of effusion the area affected includes the diaphragm, the liver and stomach. These organs are pushed downward and cause epigastric distension, i.e., displacement of organs of enteroptosis type. In this case it is not dilatation of the stomach, but it is distension of the thoracic walls, make sure of this in palpation; (8) after this we get the friction sounds, typical effusive stage, as the effusion increases the heart sounds become more indistinct; (9) in the adhesive stage the principal symptoms is a feeling of distress in the neighborhood and in connection with the heart.

Differential Diagnosis - in distinguishing pericarditis from hypertrophy or dilation of the heart note particularly that in hypertrophy and dilation there are murmurs present. In pericarditis there are friction sounds and no murmurs.

There are two types of pericarditis to be distinguished carefully. The most common type is the acute fibrinous, which almost always follows rheumatism or Bright's disease. If you have a patient with either of these diseases or history of them and a marked rise in temperature, suspect pericarditis.

In differentiating pericarditis from any heart disease, - (1) Investigate carefully the rhythm of the heart and for very marked modification in the rhythm; (2) Look for pain at the fourth or fifth interspace, the pain being unaffected by pressure; (3) Listen for the friction sounds, i.e., the ultimate test. These friction sounds are most marked in connection with the right ventricle; (4) There is a scraping or scratching sound heard at

the fourth interspace, close to the sternum; (5) Bear in mind that in pericarditis the friction sounds is both systolic and diastolic, i.e., it persists through the entire cardiac cycle. In pleurocarditis the friction sound is modified by the respiration and if the patient holds the breath the friction sound becomes more marked. In the regular pericarditis respiration has no effect on the friction sounds.

II. In the second type of pericarditis there is an effusion with pericarditis. This develops without any symptoms, when symptoms are present, - (1) the pain being felt as the first symptoms, the pain pressure being due to fluid pressure upon the heart and lungs. (2) This pressure pain generally passes into a comatose or delirious state. In some cases spasmodic convulsions are found, especially in a child or a very young person. Pericarditis sometimes follows tuberculosis. (3) In these cases there is emaciation and irregular sweats. (4) Sometimes suppurative pericarditis develops, chills, intermittent temperature, weak heart and pulse, action indistinct, cardiac sounds and sweats being the common symptoms that are found.

Chronic Pericarditis - Here we find the distention of the pericardium, the bulging out of the ribs or interspaces or both almost entire absence of the apex beat and a permanent impairment of the heart movement. The chief symptoms are pericardial pains, distressful feeling, displacement of the apex impulse, very feeble action of the heart and indistinct sounds.

(a) Hydropericardium Found in general dropsy in common with the kidney or heart or both. Here we have an accumulation of fluid in the form of water. Symptoms are - distressful feeling, very marked dyspnoea and dropsy, especially of the lower extremities. This frequently follows some form of transudation into the pleural cavity. Very rarely the dropsy has a predilection for the pericardial sac, rather than its usual location. Probably some local alterations in the pericardium would explain this. It may occur as the result of some local interference with the circulation, which hinders the return flow in the pericardial or cardiac veins.

(b) Hemopericarditis - here we have a condition resulting from the rupture of an aneurism. The aneurism is found in connection with the portion of the aorta close to the heart or the rupture of the coronary arteries in some cases. Here the pericardium is filled with blood and the patient generally dies of heart compression.

(c) Pneumopericardium - Here we have a condition in which air fills the pericardial sac, e.g., where the patient has been stabbed with a knife or in the case of a gunshot wound - sometimes from perforation of the oesophagus, stomach or lungs. In the last case the gases accumulate in the pericardial sac and the heart is smothered by the gas.

(d) Adherent Pericardium - This is found frequently following tuberculosis. In this case there is a retraction of the thorax, the retraction being greatest at the apex. It is very marked in

connection with the eleventh and twelfth ribs posteriorly. The retraction is always exaggerated during the diastole. Adherent pericardium is said to be hereditary in a great many cases, closely associated with tuberculosis.

Treatment - Remember pericarditis is secondary to toxic pyemia or septic condition, look back to the general condition, i. e., we are dealing largely with pericarditis from side of palliation.

- I. In the treatment there are three things to be aimed at;
- (1) To sooth and quite the heart by palliation. - Remember that the nerve supply of the pericardium the intrinsic nerve field in connection with the superficial cardiac plexus.
 - (2) To overcome the inflammatory conditions, by stopping congestion.
 - (3) To promote absorption and to prevent heart failure.

II. We must take account of the cause of the pericarditis - the real cause is some form of venous obstruction, caused by the compression of the upper portion of the chest walls or thoracic contraction resulting from the neurosis. This compression may be associated with the strong contraction of the intercostal and pectoral muscles. This contraction diminished the space available for cardiac action, resulting in venous obstruction and the enlargement, not of the heart itself but of the covering.

III. In the treatment - (1) Remove the abnormal pressure by correcting the lesions, in the intercostal and pectoral muscles - they are best relieved by raising the ribs. The ribs involved are the first five or six. In some cases lesions are found in the corresponding vertebrae, and in other cases there is a dislocation of the ribs. It is limited almost entirely to the left side. In some cases, however, the ribs on the right side may be involved by sympathy.

Note this point - There is such a thing as a spontaneous displacement of the ribs, e. g., when you set a third rib on the left side you may find the rib on the opposite side may get out.

In raising and spreading the ribs have patient lie on back - place the finger of one hand on the angle of the rib, apply pressure upward from posterior to anterior and at the same time raising the patient's arm above head. Following this apply pressure from anterior to posterior, with one hand anterior being placed over the entire pericardium. Then raise the patient to sitting posture, place thumb of one hand at the angle of the ribs and with the other hand raise the arm of the patient above the head, pressing upward with the thumb on the angle of the rib. Treat the following ribs same way. In this case look for anterior or lateral lesions of the vertebrae in this case. If you have an anterior lesion place the patient on the side, pull the head and neck around so as to give the patient a "hump-backed" position, then pull diagonally upward on the vertebrae, i. e., anteriorly. If it is laterally pull directly upward. In both cases give an articulating treatment to the vertebrae involved.

(2) Give strong stimulating treatment in intercostal area with patient on side or face. In a case of pericarditis by preference treat the patient on the right side.

(3) Give treatment to relieve the tenth cranial nerve from pressure or irritation:--

- (a) By rotating the atlas;
- (b) Along the sheath of the carotid;
- (c) At the head of the first rib, for vasomotor through the depressor nerve.

(4) Examine carefully from fifth cervical to first dorsal on the left side. Relieve contraction of muscles in above area, rotation, articulation the vertebrae and stimulating middle and inferior cervical ganglion. In doing this you reach both sides of heart.

(5) With patient on side place thumb between transverse process of atlas and occiput on left side and apply strong inhibitory pressure. Object here is to get control of the heart while it is struggling, control being governed through left vagus nerve. This is also treatment that is given for palpitation of the heart, the treatment here being preceded by raising ribs.

(6) Look to condition of phrenic nerve, especially in connection with third and fourth cervical vertebrae and along the side of the sheath of the jugular vein on left side. Fifth D and fifth rib represent cerebro-spinal lesion of the phrenic; fourth and fifth cervicals represent sympathetic lesion, of phrenic. Along with the above treatment treat the diaphragm if it is involved - you may find marked distension of the diaphragm and will give stretching treatment to relieve it.

(7) Give patient good general treatment once a week and find out whether it is a case of which there is an interference with the peripheral resistance from the blood standpoint. If so begin at fourth and fifth dorsals and give circulatory treatment, if not give circulatory treatment to the four areas of the body.

(8) Apply vibration over the pericardial area, especially in adherent pericardium. Vibration and dry heat are very good.

(9) Inhibit depressor nerve to get control of the heart, if tenth cranial is not functioning or has lost its function. Depressor nerve normally causes vaso-dilation all over the body, call for inhibition of the depressor nerve would be excessive vaso-dilation. The depressor nerve is a sensory nerve. It is also an emergency nerve, acting to relieve the pneumogastric nerve. Stimulate depressor nerve if heart is over-functioning.

(10) In dealing with acceleration of the heart deal with it through the depressor, rather than phrenic nerve.- Acceleration in relation to the heart are two fields - (a) cervical region, are sympathetic, cervical ganglion; (b) dorsal region, are cerebro-spinal, at second to fifth ganglia. The both, i.e., acceleration go to the heart and lungs, then (a) through pulmonary and (b) cardiac plexuses, i.e., they go to a plexus first.

The lesions at (a) fourth and fifth dorsals,

- (b) At fourth and fifth cervicals
- (c) At sixth and seventh cervicals

ENDOCARDITIS

Here we have an inflammation of the lining membrane on the anterior wall of the heart; in some cases limiting to the valves and in other cases to the lining of the cavities, in other cases both valves and cavities. It is caused by toxemia or septicemia or it is congenital. It may be found either in the acute or chronic form, the acute form is either simple or malignant. The latter is sometimes called infectious endocarditis. The former, primary endocarditis, is very rarely found, i.e., in distinctive lesions involving the endocardial circulation or in some traumatic cases.

Endocarditis is secondary, e.g., to acute rheumatism, whooping cough, measles, smallpox, typhoid fever, scarlet fever and gonorrhoea. The most common disease which it follows is pneumonia.

The first physical sign is increased temperature coming on suddenly with a very sudden change of pulse - hard pulse. (Most pneumonia patients die of endocarditis instead of pneumonia). Endocarditis is also found or accompanying chorea. It comes on suddenly in these cases also.

Pathology - (1) Inflammatory process following the toxic absorption or the congestion of circulation in the traumatic or lesion type. (2) Following the closely marked morbid structure in or in connection with the endocarditis. The most characteristic point in endocarditis is the vegetable growth, especially around the valves. The left valves are most commonly affected - mitral valves particularly. These vegetative growths appear -- (a) around the auriculo-ventricular orifice; (b) from that point they develop on to the valves; (c) sometimes these vegetations are broken off and produce embolisms which of course means sudden death.

In favorable cases the vegetations becomes absorbed and there is left a weakened condition (sclerotic) of the endocardium. This sclerotic condition is often the starting point of valvular disturbances that have exerted earlier life. Sometimes endocarditis is found during the embryonic life. This represents the congenital type. In this case it effects chiefly the right side of the heart. In this case there is left behind an infected condition of the chordae tendinae of the heart. Vegetations growing on these tendinous cords causes the child heart to beat very irregularly and explain many of the cases of early heart trouble found in children.

Symptoms of Simple Type - The symptoms in the simple type are very few, and one is required to depend upon the physical side. (1) Murmure, typical; (2) Change in heart sounds, parallel with the valve or valves involved; (3) Any sudden change in pulse or temperature in the course of a case of acute rheumatism, pneumonia and chorea without any known cause indicates endocarditis.

In the case of endocarditis of this type examine the sounds of the heart very carefully. There is always found a peculiar low soft and hollow murmur always following the same pathway with its origin at the mitral valve, except in the congenital type. Note that it follows the same pathway that or differential point of valvular disease and endocarditis; in some cases the first sound is rough and becomes a murmur. In all cases the first sound is muffled. The second sound is always reduplicated. This sound is a soft blowing or whistling sound, a change from short and sharp sound.

In the malignant type of endocarditis we have an acute septic condition producing necrosis or ulceration of the endocardic valves and in other words this necrosis takes place of the vegetable growth of the other type, It is almost always secondary to septicemia following pneumonia, erysipelas, Bright's disease, acute rheumatism and anthrax.

Pathology - (1) We have the inflammatory condition; (2) the vegetative conditions first; (3) then ulcerative and supuration changes, generally terminating very slowly in the death of the patient; (4) in some cases the mitral valve sloughs away altogether and sometimes the left side of the heart begins to slough away, setting up a condition of myocarditis.

The vegetation consists of granular tissue forming fibrillar structures. The mitral valve is most commonly involved. Sometimes the aortic, but rarely the pulmonary and tricuspid valves are involved. Microorganisms are claimed by some to have been found, especially the cocci and bacilli of diphtheria and gonorrhoea and the streptococci. Sometimes these malignant endocarditis is secondary to an inflammatory state of the spleen, kidneys and brain. In all cases there is a new chemical substance formed, this is an organic toxin, which enters into the blood and acts as a toxin, setting up the inflammatory changes.

Symptoms - Here we have (1) the symptoms of septic conditions, e.g., paroxysmal febrile temperature, sweating, fever and chills, plus the typhoid states toxic rashes and toxic diarrhoea and septic jaundice. (2) In the early stages all of the symptoms are located in the heart area, e.g., the murmurs, just as in the simple type. (3) In the later stages the symptoms affect the body in the general when the septic matter is distributed through the blood. (4) The net result is to localize in some particular field, e.g., in brain, in hemiplegia and aphasia are two very common symptoms in connection with this condition. (5) The malignant endocarditis may be communicated as in infectious diseases when it passes into a state of systemic septic poisoning, especially if in contact with an abrasion or open wound on the surface of the body.

The predisposing cause of endocarditis is a chronic weakening of the valves of the heart. This may be cited by the murmur that is found which is low and soft and it depends upon the condition of the general blood circulation.

Treatment - From the osteopathic standpoint - (1) the starting point is osseous lesions - second to fifth dorsals, vaso-motor - neurosis, e.g., from retraction of ribs; (2) from this vaso-motor condition originates the deep-seated obstruction to the deep circulation of the blood, especially in the coronary field. This gives us two conditions - (a) an original neurosis, limited to the vasomotor system; (b) a reaction upon the deep circulation with a weakening of the left side of the heart, settling down in the mitral or aortic valve field.

(1) Keep your patient absolutely at rest in bed. Do not allow patient to sit up at all.

(2) Treat the circulation from the vasomotor standpoint in relation to the heart, i.e., from the fifth cervical to the first dorsal in connection with the first rib and in the interscapular area, second to fifth dorsals. Treat the left side especially at all points mentioned, then the right side. The object is to equalize the circulation on both sides.

(3) Correct the lesions found. They may be from fifth cervical to first dorsal first, third and fourth ribs, the pectoral and intercostal muscles.

Endocarditis differs from pericarditis in the fact that there is a low soft whistling sound heard at the apex - (a) the apex being always displaced to the right; (b) there is also an involvement of the diaphragm, especially on the left side. Here look to the condition of the sternal cartilages on the left side. According to Musser there is a thoracic retraction of the whole left side of the thorax. This will be corrected by a treatment by raising the left side of the thorax. In giving this treatment in endocarditis and in the treatment of the diaphragm, do not pull upward on the diaphragm or the cartilages toward the head of the patient, but stand at the side of the patient and place the hand under the scapula, pulling upward and at the same time lifting slowly the arm of the patient straight up at right angles to the body. Follow this by applying also antero-posterior pressure to the body in the thoracic region, but do not apply too strong pressure over the apex of the heart as you are liable to shock the heart.

(5) To relieve acute conditions raise and spread gently the first five ribs on both sides. Have the patient on the back; put one finger at the angle of the ribs while pulling on the arm over slowly the head of the patient.

(6) Give strong vasomotor treatment to the heart through the pneumogastric nerve, also give inhibition between the transverse processes of the atlas and occiput and along the sheath of the carotid artery.

(7) Treat the middle and inferior cervical ganglia. The best way is to (1) relax the muscles in the lower part of the neck; (2) then rotate the fourth to sixth cervicals and first dorsal vertebrae.

(8) Apply vibration with the hand over the pericardial area unless there is evidence of collapse, giving the vibration only with the weight of the hand to clear up sounds of heart and overcome neurosis. After giving the vibration use the stethoscope

or phenendoscope to find out when there is any alteration in the sound and to find out whether the apex beat is modified. If there is such a modification repeat the vibration until you can distinguish clearly between the first sound and the murmur. If there is no modification do not repeat the vibration.

(9) In the malignant type trace out the organs that are involved in the septic condition. If the spleen is involved give treatment for the spleen - eighth to tenth dorsal, vibrate in front and give the elastic pressure treatment after treating the spinal area - If the liver or kidneys are involved treat those in the proper areas similar to the spleen.

Chronic Endocarditis - This may follow the acute endocarditis or represent a chronic inflammation which never was acute. It is generally due to excessively strong muscular activity involving either the general muscular system or the heart muscles. Sometimes it is due to lesions in the upper dorsal area - 4-6-D- or involving the ribs, fifth and sixth or the corresponding vertebrae. Sometimes it is the secondary result of arterial sclerosis. It is also secondary to Bright's disease, syphilis, gout, alcoholism and lead poisoning. Sometimes it is the result of acute continued rheumatism.

Pathology - (1) Congestion; (2) Inflammatory condition of the endocardium, both caused toxins in circulation; (3) Thickening of the endocardium; (4) Sclerotic condition of the endocardium, sometimes neurotic condition limited to the mitral valve area; (5) Development of nodules of type in the endocardium; (6) Contraction followed by the retraction of valve itself with valvular symptomatology. In the early stages the margins of the valves become thickened - this is typical chronic, next they become sclerotic, after which there is a development of fibrin or fibrinous matter, causing the thickening and also producing retraction of the valve, the valve flaps becoming curled and sometimes entirely deformed. This causes the imperfect opening and closing of the valve.

The mitral valve is most commonly involved. In this case there is retraction of the valve and this causes the contraction of the orifice, this in turn produces sclerosis and sometimes necrosis developing with excessive deposits of the calcium salts. In this case hard rings form around the orifice and around the valves so that the valves move with much difficulty. Following this we have fatty degeneration with resultant necrotic ulcers.

(7) In chronic endocarditis the walls of the cavities are always involved, either earlier or later, cicatrices being found at different portions of the wall. These cicatrices represent little white-grayish patches in the endocardium and frequently the cicatrix extends down into the deep substance of myocardium.

Any of the valves of the heart may be affected and the involvement is one of two types - (1) valvular incompetency, and (2) valvular stenosis.

I. (a) In the aortic valve involvement we find chiefly incompetency or insufficiency. Here there is a failure of the valve on account of weakness in the valve or weak substance of the heart to prevent the return blood to the ventricles. The most common cause is the same disease of the valves or its flaps. Here we find - (1) the contraction of the valve resulting from inflammation or rupture; (2) the distension of the orifice with hypertrophy of the left ventricle; (3) in most of the severe cases some congenital deformity or malformation of the heart. The cause is infection carried in the blood and deposited by the blood itself in the valve field. In some cases lesions are found in the lower ribs, the ribs being displaced downward or in an oblique direction. This causes interference with the diaphragm action producing diaphragmatic prolapse. This prolapse causes pressure on the aorta, contraction of the aorta, setting up - (a) primary aortic regurgitation. As this regurgitation becomes chronic the orifice becomes permanently dilated and the valve weakened.

Symptoms - In the pericardial area there is increased dullness, displacement of the apex beat to the sixth or seventh interspace. In some cases also displacement outward in the left lateral direction as far as the axillary line. Sometimes we also find marked pericardial bulging, the arterial shot-like pulse, diastolic murmur which is heard loudest at the second right intercostal space.

(b) In aortic stenosis type, the congenital or secondary type, there is a narrowing of the lumen of the orifice. Sometimes it is found along with and sometimes preceding valvular incompetency. Most commonly when the condition is found by itself then there is a stiffening of the leaves or flaps of the valves while in some cases it is congenital and other cases it is due to inflammation principally as a result of rheumatism, and in old people of calcareous deposits.

Among the symptoms there are systolic murmurs heard at the second interspace heard on the right side, the murmur being reflected toward the carotids. In this cases there is a small even pulse and the apex beat is displaced toward the left and downward.

II. In the mitral valve - (a) Failure or incompetency of the mitral valve. Here the valve does not close properly on account of rupture. Contraction of the mitral cusps, dilation of the left ventricle and diseased condition of the chordae tendinae. In some cases the cause is a congenital one, in others there is over-muscular strain, deficiency in the blood, produced by some type of fever or excessive use of alcoholic liquors, morphine, etc. The lesions are found in the second to fourth dorsals and the corresponding ribs, principally the first three ribs.

The symptoms are very marked, venous enlargement, great dyspnoea, spasmodic coughing as a venous condition - jugular engorgement, displacement of the apex toward the left, a blowing

sound heard over the apex synchronous with the first sound, i.e., systole.

(b) Stenosis. Here there is the contraction and rigidity of the auriculo-ventricular orifice on the left side of the heart, preventing the blood from passing freely into the ventricle. This originates in an inflammation and thickening of the endocardium followed by adhesion of the flaps of the valve and the contraction of the flaps.

Among the symptoms we have marked dyspnoea, without coughing, but asthmatic, serous expectoration, jugular pulsation coming from heart, retracted back from heart, and the pre-systolic thrill heard over the apex in relation to the second sound.

III. The tricuspid valve - (a) Insufficiency and incompetency. This is due to the imperfect closure of the valve, caused by inflammation of the pericardium which causes a shortening and curling of the valve flaps. This is found following or accompanying disease or diseases affecting the left side of the heart.

The lesions found are - second and third ribs on the left side and corresponding vertebrae.

Symptoms - Hypertrophy of the heart, throwing it forward on the right side. The apex beat is thrown forward and downward toward the ensiform cartilage. There is a soft blowing systolic murmur heard best right over the ensiform cartilage.

(b) Stenosis. This is due to the constriction of the right auriculo-ventricular orifice. It is found very rarely and when it is found it is caused by rheumatism or is congenital. There is a perystolic murmur which is heard over the ensiform cartilage in this case.

IV. The pulmonary valve - (a) Insufficiency. This is very rare. It causes regurgitation of blood into the right ventricle. Where it is found it is always congenital. The apex beat is displaced to the left and a diastolic murmur is found at the second interspace on the left side.

(b) Stenosis. This is also very rare. When it is found it is due to the constriction of the pulmonary valves. It is always congenital.

Treatment. (Continued). Here we are dealing with an inflammatory state of the valve due to - (1) excessive vaso-constriction from the blood side, irritated by the presence of toxins. (2) From the nerve side it is neurosis and neuroticism, if congenital endocarditis, e.g., alcoholism, syphilis, scrofula, and also specific toxins. (3) This is a chronic state which settles down as a permanent exaggerated state of vaso-constriction, and amounts really to a constitutional condition, so far as chronic endocarditis is concerned we are dealing with a constitutional condition - disease.

(1) Diet. Give the patient nutritious food that will not excite the stomach. Anything that causes the stomach to be deranged will be against the treatment of endocarditis. Give a liquid diet rather than a solid - in acute, in a chronic dry diet so as to lessen amount of blood and bring down blood

pressure, also eliminate acid elements as much as possible and all stimulating food.

(2) Where the stomach itself is involved pay attention to the treatment of the tenth cranial nerve and solar plexus and sympathetic nerves supplying the stomach.

(3) The lesions are found - (a) in the first five dorsal vertebrae and corresponding ribs, also the left clavicle; (b) the scapula on the left side. One lesion commonly found is the (c) displacement of the first rib on the left side. This interferes with the subclavian artery and causes pressure which produces constriction of the artery with a regurgitation of the blood, it also produces irritation. A pressure upon the cardiac fibers of the recurrent laryngeal nerve from the first rib or clavicle or muscular conditions of thorax; (d) Frequently we find lesions involving the second and third ribs, interfering with the right side of the heart and vena cava circulation; (e) the most common lesions found are third to fifth ribs interfering with the mitral and aortic valves on the left side of the heart. Remember the relation of the right side of the heart to the spine - 8-9-D. The left side of the heart is governed from 3-5 D. and the right side is governed from the 2-3 D. (f) Lesions are also found in the vertebrae corresponding with these ribs, second to fifth. In this case, i.e., rib or vertebrae lesions the interference is with the vasomotor function through the sympathetic nervous system. It is this that explains stomach or intestinal disturbances, which are always associated with a rib lesion. The reason for this is that stomach area falls in the same area in the spine, that will make stomach trouble sympathetic. (g) Lesions are also found in the cervical vertebrae, e.g., at atlas. In this case the lesions interfere with the tenth cranial nerve from the inhibitory side; and second to fourth C. lesions the sympathetic nerves from the accelerator side; sometimes third to fifth C. through the phrenic nerve via the diaphragm, (h) In some cases the floating ribs are displaced downward or the ensiform cartilage is pressed inward. In these cases there would be found either prolapse of the diaphragm or exclusive relaxation of the diaphragm, causing strong contraction of the aorta. This sets up increased tension of the aorta and is to regurgitation of blood.

Now, having these lesions what interference is produced? We have two things here to deal with - (1) mechanical pressure upon or irritation from blood-vessel or nerve; (2) reflex condition in the form of a reaction on the nerves to the heart. The displacement causes pressure or irritation of the nerve and blood supply to the heart. This plus the other condition that lies in the mechanical pressure on the blood vessels causes an increased tension in the blood vessel walls. The nearer this tension lies to the heart the greater the tendency to produce regurgitation and obstruction. Consequently there are two points to be aimed at in the treatment:--

(1) To relieve the pressure and consequent tension by correcting the lesions; (2) to relieve the tension or to balance

the circulation so as to counteract or minimize the tension by equalization the circulation. In the treatment of the circulation pay attention to - (a) the blood supply to the brain; (b) the blood supply to the stomach; (c) the blood supply to the pelvic organs; (d) the blood supply to the thorax.

(3) Palliative treatment, the aim here is to relieve the vasomotors to the heart - (a) by direct treatment of the pneumogastric nerve and also (b) the direct treatment of the vasomotors in the upper dorsal and give strong stimulative treatment in the interscapular area, followed by articulatory treatment and whenever you can give it strong.

(4) Nature provides for the compensations to the endocarditis in connection with the valvular disturbances. By attempting to correct the local condition of the valves, nature by establishing - (a) a new condition in the structure orifice or cavity or valve or all of these. This means that osteopathically, function determines form, e.g., in stenosis of the orifice we find a thickening, curling or puckering of the flaps of the valves. This alteration in form or structure compensates for the change in function as the structure is changing under the action of natural processes.

(a) By keeping the arterial, venous and capillary blood systems open all over the body by vaso-motor treatment, i.e., thorough articulation from second dorsal to second lumbar;

(b) A new condition of blood distribution and circulation is established. In dealing with this condition, i.e., the attempt of nature to establish compensation - (1) by keeping patient's body free from peripheral tension, thorough relaxation of muscles, keep kidneys free;

(2) By keeping the secretory and excretory systems open. This applies to the kidneys, intestines and sweat system. If this part is not attended to the case will probably turn into one of malignant endocarditis.

(3) Make the patient take regular graduated exercise without requiring an extra effort on the part for the patient. You can prescribe the simple exercises of walking, or in a child some simple form of play.

A strong point in valvular conditions of the heart is to keep the excretory organs free.

M Y O C A R D I T I S

Here we have an inflammation of the muscle substance. The exciting cause is thrombosis in the so-called primary cases. It is secondary to febrile conditions - typhoid fever, scarlet fever, etc.

Pathology - (1) Inflammatory condition of the muscle substance, generally by extension from the endocardium; (2) Interstitial infiltration; (3) Parenchymatous degeneration; (4) Suppuration - multiple abscesses.

Symptoms - In mild types there are no symptoms. In severe types we may have - (1) Oppressive feeling in the pericardial area, followed by (2) symptoms of thoracic dyspnea; (3) the pulse becomes rapid, irregular and weak; (4) depression of the general circulation, extremities are cold, head feels heavy. Following (5) excited circulation, temperature high. Myocarditis becomes at this stage a febrile condition and there is the beginning of malnutrition of the heart. (6) We may have the symptoms of paralysis in some cases also shock resulting in instant death.

This is also the case in myocarditis following diphtheria and pneumonia. The paralysis here is one of two types - (a) cardiac paralysis (instant death); (b) peripheral paralysis in the extremities of body,

(7) Involvement of mitral valve. Symptomatology is - (a) an increase in the first sound, increase in length of sound and (b) loss of apex beat, ventricle of heart is not able to throw the apex forward to the chest wall.

Chronic Myocarditis - condition followed the simple and in some cases coming on without any previous simple myocarditis. The exciting causes are the excessive use of tobacco, alcohol and stimulants, secondary to gout, rheumatism, syphilis, chronic nephritis, diabetes and malaria. It is also due to traumatism.

Pathology - In the first stages - (1) and (2) in the simple myocarditis represented by degenerative changes - (a) inflammation. interstitial infiltration; (2) degeneration of muscles, occurring in patches; (3) in some cases fibrous formation. Here the suppuration stage is replaced by the fibrous formation of tissue; (4) in some cases the heart substance passes into a chronic pyemic state and a development of abscess matter from the heart (sterile pus); (5) in some cases this is followed by cavity formation in the myocardium; (6) the most important change is the hardening and weakening of the muscle fiber to such an extent that the heart is like a fibroid mass of tissue.

Symptoms - (1) pulse weak, and (2) intermittent; (3) dyspnea; (4) in severe cases, if toxin is the cause of action, there is the galloping heart, rapid - (a) rapid cardiac rate rhythm; (b) irregular heart action; (c) tendency to rapid collapse of the heart indicated by difficult breathing

(5) Symptoms of dilation; (6) cardiac aneurism, a condition of the coronary blood vessels in the walls of the heart - a sequel to a resultant of myocarditis, sometimes produced by or follows myocarditis - may be due to thrombosis or emboli or degenerative conditions taking place in heart muscle. Heart engorged with blood; (7) thoracic bulging at apex point. In some cases the blood may perforate the pericardium and get into the thorax causing symptoms of hydropericardium, causing death of patient. (8) Sometimes there is suffocation which causes death, when the blood is regurgitated to lungs and they are unable to take on oxygen, because of the excessive accumulation of blood in the lung field. If it does not result fatally the fluid is absorbed.

Treatment of Myocarditis - Original conditions causing the myocarditis are found in capillaries. These are reflected along the arterial system and coronary arteries. This explains why - (a) we have a weak heart and pulse in the early stages of Myocarditis; (b) why we have a rapid and strong pulse begins both in the capillaries and arterial system and settles down in heart or pulmonary system. Changes in myocarditis are either in the heart or lung field, i.e., it has passed involvement if the arterial system; (c) it also explains why the final rapid circulation in the later stages.

In the treatment - (1) Absolute rest of patient to avoid irritation, especially to peripheral circulation.

(2) Treat to produce co-ordination of circulation and to keep down dilation of heart - (a) in doing this stir up the superficial circulation at four and fifth dorsals by articulation, followed by (b) of lower and upper extremities.

(3) To assist in the establishment of equilibrium open up the venous circulation - (a) at subclavian circulation on left side; (b) circulation of saphenous opening on left side.

(4) Stimulate as strongly as possible by any means available the capillary circulation so as to increase rapidity and uniformity of the blood flow, capillary circulation is the starting point of circulation. Here is when hydrotherapy can be employed very successfully by application of alternate heat and cold.

(5) Try to produce an equilibrium in the nerve force of the heart, i.e., for sympathetic and cerebro-spinal sides - (a) at superior cervical ganglion; and along the sheath of the carotid on both sides, i.e., by stimulation; (b) by alternate inhibition and stimulation at second to fifth dorsals, i.e., rhythmic side of heart -

(6) Diet patient simply to keep up existence of force and energy.

Additional notes for treatment of Myocarditis.

Treatment - In Myocarditis we are dealing with a condition similar to endocarditis. The lesions that are found are in the same area as in endocarditis. ---

(1) First point in treatment is absolute rest in bed for the patient, attending particularly to hygienic conditions.

(2) Pay attention also to the nutrition of the patient - the condition is always liable to settle down and form a sepsis, hence give a diet that is predigested or easily digested. Attend to the condition of the stomach, eliminate temporarily proteid food, use some of the predigested food.

(3) Give treatment for impaired nutrition the same as you indicated in dilatation of the heart, to increase coronary circulation by slight pressure in the abdominal aorta.

(4) Give thorough treatment for the equalization of the circulation.

(5) Open up the venous circulation, especially pay particular attention to ---

(a) The subclavian vein, - you get at the subclavian vein by placing the fingers of one hand under the clavicle, close to the first rib, then lift the arm of the patient straight upward at right angle to the body, at the same time stimulate the circulation to the upper part of the body by raising the ribs and spreading the thorax on both sides;

(b) At the saphenous opening, you reach this at a point on the lower limb opposite the symphysis pubis, following it upward until you meet the resistance of the blood at the opening. When you reach that point keep strong pressure over that point until you give some rotary movement to the limbs.

(6) Stimulate the capillary circulation --

(b) By strong stimulating treatment at the center for superficial circulation - fourth and fifth dorsals;

(a) By the thorough relaxation of muscles, so as to increase the rapidity of the arterial flow.

(7) Apply treatment to equilibrate the heart, by alternate inhibition and stimulation at the second to fifth dorsals;

Chronic Type I. (8) Determine the cause of the fibroid or fatty condition. Look to these organs that are causing this trouble, principally the pancreas and liver. Stimulate the internal secretion of pancreas and liver through the cerebro-spinal nervous system. Treat pancreas through sixth to eighth ribs and corresponding vertebrae. Strong articulation of the sixth to eighth ribs, followed by articulation of the corresponding vertebrae.

II. (9) Look especially to the condition of the first six ribs and corresponding vertebrae. Look particularly to the first, and second and fifth and sixth ribs together. These lesions are frequently found complementary and compensatory to each other. The first two ribs frequently drop down, that is, are sunken, the fifth and sixth are elevated, sometimes vice versa.

III. (10) Treat the vasomotor system to the lungs and heart, aim here is to establish vaso-constrictor control. The best treatment is --

(1) Gently raise the first rib and clavicle to reach the tenth cranial nerve and sympathetics - superior cervical ganglion;

(2) Stimulation of the first four dorsal vertebrae, followed by rhythmic treatment in the same area.

IV. (11) Attend to the diet and hygiene the same as in the acute type, particularly, see that the patient gets skin bath so as to keep up superficial circulation. In giving this sponge bath use salt freely, when patient is chilly use tepid water. When beginning, use the bath every third day until the patient becomes accustomed to it, then by dropping out a day, give the sponge bath every day.

HYPERTROPHY OF HEART

Here we have the resultant of some previously exciting condition, e.g., the over-functioning of the heart, attempted to some other condition either in the heart itself or outside. In all of these cases the structural change is the result of the functional disturbance. In a primary functional condition and a secondary structural.

In hypertrophy of the heart there is an increase in the cardiac walls either general or local, affecting the whole heart or limited to a single cavity. There are three types of this --

- (a) Simple hypertrophy, which is an increase of the normal size of the cavities of the heart
- (b) Eccentric. Here there is an increase in the walls of the cavity and also the cavities themselves.
- (c) Concentric. Here there is an increase in the walls and a decrease in the cavity. The left ventricle is most commonly the seat of hypertrophy.

Etiology-

The causes of hypertrophy are - (a) obstruction of the blood flow, to tissues and in the heart; (b) increased action of the heart. General hypertrophy or hypertrophy of the left ventricle is found in heart diseases, e.g., valvular diseases, also in diseases affecting the blood vessels, as diseases affecting the aorta. Here there are three types - (1) nervous; (2) blood; (3) increased peripheral resistance. (c) In addition to these we find causes: - mitral incompetency, diseases of the aortic valves, causing hypertrophy of the left ventricle myocarditis, palpitation, pericardial effusion and adhesion, disturbed innervation from cerebro-spinal or sympathetic sides, over-activity of the heart, exophthalmic goiter, excessive use of stimulants, e.g., tea, coffee, tobacco, liquor, etc., especially in pericardial effusion.

Myocarditis causes general hypertrophy of the heart, i.e., "Bicycle heart", because the heart is unable to do its own work, the struggle for existence in the heart of the heart produces the hypertrophy. - Neurosis of the heart innervation also produces hypertrophy.

Diseases affecting the blood vessel walls, e.g., arteriosclerosis, increased arterial atheromatous tension due to the contraction of the peripheral arteries, as in Bright's disease, and some of the toxic diseases, like syphilis and gout. Some recommend patients to play golf. There is something else necessary besides exercise to overcome this condition. Prolonged muscular exercise modifies the pressure within the blood vessels and this reacts on the heart. Sclerosis of the arterial walls, excessive eating, or excessive physical exercise, like bicycle riding, etc., frequently cause hypertrophy of the left ventricle. Any of the causes narrowing the lumen of the aorta, change in the diaphragm, congenital stenosis of the aorta, aneurism of the aorta, all cause hypertrophy.

Then we have displacement of the ribs and vertebrae - second to fifth dorsals, rhythm of the heart, downward displacement of the floating ribs, causing prolapse of the diaphragm and thus retarding the circulation to and from the heart.

LESIONS: - (a) Fifth dorsal to second lumbar, which are (1) anterior, or (2) left lateral lesions, interfering with the blood supply primarily and causing hypertrophy; (b) lesions irritating the heart, e.g., abnormal congestion, as pelvic congestion or the irritation of some other organ or organs, reflecting; (c) lesions at ninth and tenth dorsals, involving - (1) the diaphragm; (2) kidneys; (3) splanchnic function; (d) lesions below the tenth dorsal, operating via the splanchnics; in hypertrophy of the right ventricle there is obstruction of the blood to the pulmonary system, e.g., lesions of the mitral valves causing pulmonary stenosis. This is found as a complication of prolonged lung disease, like pneumonia, etc. and causes hypertrophy, here lesions are - right lateral lesions of second to fifth dorsals.

Simple hypertrophy of the left auricle together with dilatation is found in cases of stenosis of the right auricle in right sided dilatation. In this case we find a typical tricuspid regurgitation with the parallel typical lesions.

Pathology - The left side of the heart is more commonly involved on account of the greatest strain on the left side of the heart, the left ventricle being involved more commonly than the left auricle, because of greater thickness of the walls, for when the left ventricle is hypertrophied the shape is changed. The normal shape of the heart gives place to a broad heart structure instead of a conical shape, while at the same time the heart lies more horizontal in the thoracic cavity. In hypertrophy of both sides the heart becomes rounded and occupies a diagonal position in the thorax without the slanting antero-posterior from the apex to the base. If the right ventricle is hypertrophied it displaces the apex and throws the heart more into the right thorax - (a) the primary changes in the heart are then unobstructed circulation on the coronary side with tendency to a static condition; (b) following this in hypertrophy there is an increase in the size of the muscle cells of fibers and in the number of the muscle cells, the muscle substance becoming more firm and solid, more resistant, less elastic of a deep and dark color.

Hypertrophy is less frequently compensatory, one side or portion of heart being hypertrophied to compensate for the condition found on the other side. Here the pathology is that of disturbed circulation, the unbalance of circulation being produced by tendency to compensate.

Symptoms - At first there are no symptoms or pain, later the first symptoms found is - (1) sense of fullness and a disagreeable crowding sensation. (2) As the heart increases in size the arteries become larger, i.e., there is more blood in the arteries and less in the veins. This has a number of effects - (a) it increases the general circulation; (b) there is a tendency on the surface of the body to flushing and full-blooded condition; (c) there is an increased tension in the entire

arterial system, producing such conditions as epistaxis, spitting of blood, etc.; (d) sometimes we get continuously the "rusty-nail" expectoration, which is the expectorate given off in the tracheal, laryngeal and bronchial areas; (3) Congestion of the brain.

This is one of the most frequent symptoms and represents a periodical or persistent congestive headache, associated with pains in the region of the pericardium, which is very common.

(4) Symptoms of hypertrophy are first general and later become localized. These symptoms are all due to an increased circulation and an increased tension within the circulation. (5) At this stage we find the special or localized symptoms, especially manifested by ringing in the ears, flashes before the eyes and flushing of the face, a semi-dropical condition of the eyes, head and throat. (6) Pulmonary congestion. Local or special symptoms, e.g., in hypertrophy of the left ventricle there is an increased fullness in the entire vascular system, increased arterial tension, especially in large vessels as the aorta. Rupture takes place sometimes in the brain, heart, kidney and lungs, that is, the peripheral blood vessels become ruptured. (7) Distinctly localized symptoms, such as discomfort in lying down, pain in the heart, (deep) bulging out of the pericardium, increased expansion of the intercostal spaces with intercostal neuralgia, lowering of the apex beat to the fifth or seventh interspace, feeble pulse, dull and prolonged sound accompanying the second sound, increased intensity and sometimes reduplicated.

(8) In hypertrophy of the right ventricle we find increased pulmonary tension caused by resistance in the field of the pulmonary circulation, dyspnoea, bulging out of the sternum. - epigastric impulse and a diffused apex beat, always extending upward.

(9) In the hypertrophy of the left auricle we find mitral stenosis with an increase of dullness on percussion to the left of the sternum at the second and third interspaces.

(10) In hypertrophy of the right auricle there is dilatation with an increased dullness in the third and fourth interspaces, the auricle extending toward the left, the abnormal pulsation at the second or third interspaces or the third or fourth on the right side and a prediastolic murmur.

Treatment - In treatment of all diseases of the heart substance there are a number of points to be noted particularly.

(1) Any obstruction of the free circulation of the blood tends to throw upon the heart extra work, by stimulating the accelerator of nerve function and in the long run produces a weakness of the heart by exhaustion. With this weakness the heart becomes enlarged, the enlargement in this case being compensatory. In relieving this condition the only way to do it is to relieve the tension or irritation of the systemic circulation. This is best done by using the muscles as a media of treatment.

(a) Give a general treatment by beginning at the head and treating away from the head.

(b) Give alternate stimulation and inhibition at the fourth and fifth dorsal vertebrae to promote the rhythm of the heart and lungs. This will relieve secondary asthmatic symptoms, stimulate the circulation of blood through the organs, such as the liver and kidneys. This also relieves the heart by relieving the blood pressure. The lowering of the blood pressure takes away a resistance which frees the heart from extra work. This applies to all heart conditions;

(c) Pay close attention to the kidneys, which when in good condition are very beneficial to the circulation of the blood;

(2) The vasomotor system governs the calibre of the arterial system. As the tension on the arterial system means a mechanical involvement the only way to relieve that in all heart troubles is through the vasomotor system. The best way to produce this action in heart trouble is through - (a) the great vasomotor center in the medulla by treatment of the neck, and (b) through the splanchnic area, the change in the tension being reflected back to the heart, (c) giving localized treatment corresponding with the local vasomotor condition. Apply this treatment in the base-occipital region in order to reach the medulla so as to gain control of the upper arterial system. This applies to - (a) The splanchnic treatment is designed to reach the abdominal arterial system relieving the tension there.

(3) The superficial peripheral blood system reflexly controls the heart rhythm and force. If the peripheral contraction is increased or if there is a state of peripheral stasis the peripheral resistance becomes so great that it reacts upon the heart causing the heart to do extra work in attempting to drive the return of the blood against peripheral resistance. In dealing with the heart from this point of view, i.e., in relation to an exaggerated peripheral resistance -

(a) Stimulate the function of the depressor nerve at the head of the first rib, - dilation of the arterial capillaries;

(b) Through the superficial circulation at the fourth and fifth dorsal vertebrae, stimulate by articulation;

(c) Through the lower extremities by flexion and rotation of the extremities, followed by kneading treatment applied to the muscles.

(4) The mechanical contraction of the thorax is one of the causes, especially of the displacement of the heart and of the other thoracic organs. This produces direct pressure on the heart mechanically and obstructs its free action, hence, misplaced conditions of the thorax should be corrected -

(a) This will include an attempt to raise the thorax so as to gain free thoracic movement and establishing free thoracic mobility. It is best done by attempting to raise the ribs;

(b) Place your hands over the posterior thorax above the fifth rib, with the other hand raise the arm of the patient above the head, pulling and pushing upward with the hand that was placed on the posterior thorax. The patient can be laid on the right side when the hand is displaced to the left. Do not give any treatment here for raising up the cartilages.

(5) Heart diseases are often represented by reflex from the abdominal cavity, e.g.,

(a) reflex from aggravated constipation, the reaction in this case being visceromotor, i.e., the splanchnics and the solar plexus;

(b) catarrhal diseases of the alimentary tract, including typhoid fever;

(c) Uterine conditions, such as tumors and marked congestion. In these cases we always get the symptoms of dyspnoea, along with the purely cardiac symptoms, especially where the patient is lying down. In these cases devote your treatment principally to the abdominal cavity, causing relaxation, if contracted and toning up the tissues or organs that lack tone.

(6) In cases of heart trouble, especially in hypertrophy, the muscles over the ribs are tightly contracted. This causes a constant depression of the ribs. The treatment here is --

(a) Raising and spreading the ribs;

(b) Vibration over the muscles that are involved, and

(c) The correction of any lesions that may be found involving the dorsal vertebrae.

(7) Hypertrophy is nearly always to be treated as compensatory, i.e., there is a physiological compensation here. In this case the most that can be done is to equalize the blood circulation until you have treated the primary condition to reassert itself and treat for endocarditis or pericarditis or some other valvular disturbances. Look in these cases for the primary condition and especially attempt to equalize the condition of the blood. - (In treating the depressor nerve when you can't keep away from the pneumogastric give your treatment downward and inward, and in treating the pneumogastric treat downward and outward).

(8) In dieting of patient give minimum of food.

DILATATION OF THE HEART

Here we have a compensatory condition to hypertrophy.

In this case the enlargement of the heart is of two kinds -

- (1) With the thickening of the walls of the heart;
- (2) With the thinning of the walls of the heart.

Dilatation generally follows hypertrophy and sometimes precedes it. The thickening of the muscles in hypertrophy increases the work of the heart and causes dilatation of the cavities, e.g., in eccentric hypertrophy there is also a tendency to dilate, dilation takes place by compensation, i.e., to say the dilation is produced by over-activity. This is to be looked for from cause found in arterial system, e.g., a toxemia - irritation, as in scarlet fever, measles, etc. There are two ways in which general dilatation may take place:--

- (1) By defective nutrition of the heart, as a reaction from an increase in nutrition during hypertrophy; in this case the tendency is to a thinning of the walls.
- (2) An abnormal increase in the endocardial tension. In this case the endocardium tends to stop the circulation, resulting in the hypertrophic myocardium, being subtrophic.
- (3) There are two conditions commonly combine together--
 - (a) The defective nutrition produces inability to resist, and
 - (b) This inability to resist causes the walls to dilate as the blood flow increases and this thins the walls - death usually occurs due to liver trouble.

In this case the dilatation is compensatory to the over-working of the walls of the heart, especially in attempting to resist the endocardial tension. This is found, e.g., in scarlet fever, typhus and typhoid fever, rheumatic fever, chlorosis and leukemia. The increase of the tension, the endocardium tension, usually takes place suddenly, sometimes tetanic, caused by over-exertion, particularly in the valvular diseases and endocarditis. The dilation here takes place on account of the increased pressure inside the cavities, assisted by the thickening of the walls, acting as a resistance. The increased pressure is caused by an increase in the volume of the blood in the heart due to regurgitation or by an obstruction of the orifice, i.e., stenosis.

Simple hypertrophy nearly always precedes dilatation. In some cases however hypertrophy and dilatation are found side by side from the beginning, the dilatation existing only during systole. In some cases dilatation is a physiological not pathological condition, i.e., the effort of nature to maintain the heart on the same grade as the hyperfunctional condition of the other parts of the body, i.e., here accommodation. Dilatation in this case is attended by increased epigastric pulsation and sometimes increased cardiac dullness. The tricuspid valves frequently fail because these valves act as safety valves in

cases of acute strain upon the heart. In these cases you will get symptoms of heart strain. These are the "feeling of distress" within the heart, and marked dyspnoea.

In acute dilation there is an over-distended condition of the cavity, the cardiac muscle being paralyzed, endocardium being in a state of increased tension. In this case there is generally either aortic or mitral regurgitation. In the former case there is left ventricle dilatation, in the latter left auricle dilatation. Secondary dilatation is also found in diseases conditions of the walls of the heart, lessening - (a) the resisting power of the heart; (b) modifying the pressure, although sometimes very slightly, e.g., in myocarditis. In the acute fevers, like scarlet fever, typhoid, rheumatic fever and erysipelas; in acute endocarditis, pericarditis, chlorosis, chronic, myocarditis, there is dilatation of the apex, portion of the heart. In pericardial adhesion there is a fibrinous growth in the heart substance, causing heart weakness through the lack of resisting power and resultant dilation with thickening of walls.

Pathology - Here we have the pathology of hypertrophy. The right side of the heart is more commonly affected than the left. In chronic aortic failure all parts of the heart are dilated. In extensive dilatation of the heart the auriculo-ventricular rings become distended, dilating the orifice; secondarily dilating the cavities of the heart and following these conditions you nearly always find fatty degeneration of the heart - morbid anatomy.

Treatment - In dilatation the thin or thick walled condition is caused primarily by some impairment of nutrition, hence - the (1) first part is to stimulate the nutritional function. In stimulation of this there are three things to attend to -

- (a) Stimulate the superficial blood supply to keep down the stasis, at fourth and fifth dorsals;
- (b) Stimulate the normal action of the tenth cranial nerve, because it is the trophic nerve to the heart, get at it just above the clavicle on the right side;
- (c) Stimulate the sympathetic system, because it governs the blood supply at m.c.g. especially;
- (d) Inhibit or check the systemic circulation by pressure over the abdominal aorta. Increase the coronary circulation by

(2) Palliate the dilation by stimulating the blood supply through the coronary system by third to fifth rib articulation or vibration over heart, hoping that the dilation will bring back to normal. The best way is to stimulate directly the thoracic aorta in connection with the movement of the diaphragm. Lay the patient on the back and catch the cartilages on either side of the ribs and give a gentle expanding movement. Be very careful not to over-stimulate because of the cardiac symptom that may follow over-stimulation.

(3) In connection with the increase of pressure this is due to too great a volume of blood in the cavities of the heart. In order to reduce the pressure treat from two points of view:-

(a) Treat the same as you would to lessen peripheral resistance. First relax the muscles and then stimulate the depressor nerve at the head of the first rib;

(b) Treat from the standpoint of regurgitation, as if you were treating a disturbance of the aortic valve in a case of endocarditis - pressure over abdominal aorta and rotation of lower limbs with pressure over the iliac vessels.

(4) In most cases the dilatation is due to overtaxed or some diseases of the cardiac walls, diminishing the resisting power of the cardiac walls. This is due to some conditions of other parts of the body. In treating this --

(a) Relieve the primary condition, usually in the kidneys or urinary;

(b) By treatment similar to endocarditis by stimulating the rapidity of the circulation and also the excretory system.

(5) The severest type of dilatation is where only a part of the heart is involved. This produces cardiac incoordination and lack of sympathy between the two sides of the heart or the cavities on the same side. This will be noticed in the altered rhythm, e.g., "galloping heart". This is corrected by attempting to restore the rhythm of the heart. The best way to reach this is --

(a) By attempting to re-establish between the heart and lungs the normal rhythm through the nervous system. In this case a treatment of the tenth cranial nerve and its connection with the sympathetic system is called for - in third and fourth dorsals to get at the tenth cranial nerve sympathetically, through pulmonary and cardiac plexuses;

(b) Added to this a treatment of the phrenic nerve on both sides to establish coordinate action to the two sides of the diaphragm;

(c) Treat the sympathetic system in the upper dorsal region, treating the two sides and at the same time synchronously, through first to fifth ribs.

(6) Give patient treatment for equalization of blood circulation ---

(a) All along the spine with patient on back, using the arm as a lever. (Note - In all cases of heart trouble be very careful about putting the patient on face. You may crowd the heart against the anterior thorax and produce some very troublesome condition);

(b) Flexion and rotation of the limbs;

(c) Rotation and extension of the head and neck;

(d) Raise the ribs from the second to the fifth while keeping the patient still on the back.

(7) Apply vibration over the pericardial area, especially when there is a diffusion of impulse or displacement of apex beat.

(8) Give the patient rest with a regulated and limited amount of exercise, never up to the point of exertion or exhaustion. Give the patient nutritious food, eliminating particularly those foods which call for extensive gastric digestion, i. e., eliminate proteid diet, or you can give predigested food. Give maximum of carbohydrate food and minimum of proteid food.

(9) Stimulate the sympathetics of inferior cervical ganglion, to increase inhibitory condition of heart, from the cerebro-spinal side.

(10) Articulate the sixth and seventh cervical and first dorsal regions, this decreases inhibition so as to balance the inhibition and acceleration in relation to the heart.

(11) Look out for thyroid conditions, developing thyroids. Deal with this through the dilator system. In supra-renal conditions deal with from the constrictor system.

Cardiac Degeneration - There are two types - (1) The first being fatty degeneration of the heart, of the muscular substance of the heart, the muscles being converted into a fatty substance. This condition begins in an over-development and over-growth of fat in the body, the overgrowth gradually giving place to the exchange between fat and muscle tissue in wear and tear process. It is caused by - (a) interference with nutrition of the heart or (b) some abdominal condition of metabolism, it is found following most of the febrile states - the result of excessive temperature, rickets, tuberculosis, excessive use of cardiac depressants, also found following gout, rheumatism, pericarditis, endocarditis, also any toxic condition, or (c) any change in the muscular substance of the heart, especially where the muscle substance becomes excessively relaxed.

When found in the female sex it is always associated with pernicious anemia. Pericarditis may be found as a preceding condition, changes taking place following the pericarditis and the superficial muscular layers also lesions of the coronary arteries, obstructing the circulation of the heart. Capillary muscles are most affected - dilated - these being found dotted with minute yellow streaks of fat. If it is general the whole heart is involved and this begins in dilation, we have the Morbid Anatomy stage which is great relaxation with a flabby condition of the tissues, the color gradually becoming brownish, the yellow; the muscles losing their nuclei, fat globules and granules being found, in and around the muscle fibers followed by accumulation. Primary starting point - causes of fatty degeneration and fat metabolism begins in the blood which is abnormal, resulting in an excess of the granules in the blood.

Symptoms - There are scarcely any symptoms of the diseases itself - there are no symptoms in the simple type until dilatation is found when we find - (1) marked dyspnoea, asthmatic symptoms, cough, feeble heart action, feeble pulse, followed by (2) cardiac dropsy, palpitation, leading up to in the later stages to (3) Cheyne-Stokes breathing, death taking place very suddenly.

(2) This is the fatty infiltration. Here the fat found is the fat of obesity, really an accumulation of adipose tissue. In the first stages there is (1) a deposit of fat granules in the blood capillary system; (2) a deposit of fat in the cardiac muscle. This deposit (3) impairs nutrition and then (4) results in the true fatty degeneration. Found more common in the male. The change here is an increase in the total quantity of fat - entire heart being surrounded by fat - fat being deposited in the tissues and between the tissues. As soon as the muscles weaken we have symptoms of dilatation and all the other symptoms of fatty degeneration.

We have a third type of degeneration - secondary amyloid carbohydrate type. This condition is found very rarely. The real amyloid degeneration being one of the blood vessels of the coronary system.

The fourth type is the cartilagenous glassy albuminoid degeneration. Found in cases of protracted fever, muscle fibers are enlarged by swelling, hyaline material depositing among the striae. Here muscle fibers are transparent, heart dilated and solid.

The fifth type is the calcareous degeneration, deposits of calcium being found especially in old people, also in young people who use water with excess of lime.

Treatment - In fatty degeneration the treatment is very similar to that of dilatation.

- (1) General treatment, diet hygiene and exercise.
- (2) Reduce or eliminate all food to a minimum that are fat producers, i.e., proteids. Establish thorough elimination.
- (3) Give treatment for nutrition of the heart the same as in the preceding case.
- (4) Stimulate the liver. The object here is to stimulate the metabolic function of the liver:
 - (a) From the liver area in the spine, by rhythmic treatment;
 - (b) By vibratile treatment over the cartilages of the ribs;
 - (c) Elastic treatment, i.e., pressure over the ribs, in the area from anterior to posterior.
- (5) Stimulate the lymphatic system, especially in the receptaculum chyli, second to fourth L. In addition to this area stimulate the fifth to seventh C., fourth to sixth D, tenth D to second L.
- (6) Raise the ribs over the heart at the same time give treatment for expanding and stretching the diaphragm and thorax.
- (7) Vasomotor treatment in the great vasomotor area of the neck to establish circulation throughout the body. Give also inhibitory treatment along with this from the sub-occiput downward through the cervical region to prevent the development of cerebral symptoms.
- (8) If there are symptoms of angina developed treat as you would for anginal pectoris, first to fifth ribs on left side. Sometimes the angina attacks can be controlled by pressure over the thorax downward on the left side at the same time articulate gently the left arm.
- (9) Keep the excretory system open, both sweat and urinary. Look after the urinary suppression in these cases.

Fatty Infiltration - Here we have a change in the nutritive balance through neurosis of nerve supply to lymphatics, i.e., on the sympathetic nervous system side. The fat being the predominance. The disturbance is primarily a metabolic one resulting from an interference amounting to an obstruction of the innervation to the lymphatic system. The reaction from the metabolic disturbance is on the nutritive field and then later on the eliminative field.

Treatment - (1) Give the lymphatic treatment in the reverse order given before. Look for lesions in this case to the the three lymphatic areas - fifth to seventh C, fifth to tenth D. and tenth to second L.

(2) Inhibit and stimulate the receptaculum chyli function at second and third L and also in the lower splanchnic field to establish the viscere-motor function.

(3) To counteract the deposit of fat strongly stimulate the nutritive function at sixth to tenth D, operating through the splanchnic field, stimulate the function of the receptaculum chyli (a) of the splanchnic area and of the (b) second and third L.

(4) With patient sitting up apply strong inhibitory pressure at lower dorsal, pulling the spine of patient backward. Also apply the same inhibitory pressure in the interscapular area. While giving this treatment have patient breathe deeply.

(5) Stimulate general circulation of the patient, at the same time give vibration over the lungs and see that the ribs and chest are free.

(6) Get as complete visceral dilation as possible to keep blood away from metabolic field and to keep it in the digestive and secreting fields - i.e., give inhibitory treatment in the entire splanchnic area.

Cardiac Neurosis - Here we have a neurotic state of the heart with a modification of beat or rhythm, secondary to a general neurotic state. The nerves supplying the heart are also affected by neurosis. There are different types -

(1) This type is called tachycardia. Here we have a rapid paroxysmal beat of the heart with or without symptoms. It is found as a crisis or climax reached in the heart in cerebral and spinal diseases, e.g., in connection with neuritis of the tenth cranial n. or as result of excessive use of stimulants, acting upon the n's system, as tea, coffee, wine, strychnine, digitalis or opium, (1) found very commonly at the menopause and puberty in females; (2) in connection with gastro-intestinal toxemia. There are two types:

(a) Typical tachycardia. One associated with paralysis of the inhibitory function of the heart, tenth cranial nerve, and reflexly as result of toxemia, here onset slow and progressive.

(b) Another type associated with excessive irritation of the sympathetic system starting by irritation of the accelerator function of the heart as a reflex from abdominal or pelvic organs as exciting cause.

Symptoms - The onset is sudden, generally with vertigo, and cardiac oppression. The heart beat indicated by the pulse may be from 150 to 200. Pulse is small, weak and very irregular. Respiration is slightly increased. The face is at first pale and then flushed, the patient having an anxious expression on the face. The first sound is clear and normal, second weak and low, deficient particularly in its valvular characteristic. There is also a murmur at the apex of the heart.

(2) This type is bradycardia. This condition of neurosis affects not the force of the heart but the beat. In bradycardia there is always either a primary or secondary change in respiration, i.e., bradycardiac, secondary to laryngitis, pharyngitis, it is an involvement of the coordination of the heart and lungs. Here there is a permanent paroxysmal slowing of the heart, sometimes associated with (1) organic heart diseases; (2) more commonly associated with organic nervous disturbances, e.g., it is found in the fibroid and fatty heart also in diseases of the coronary arteries; (3) also found during convalescence from infectious fevers. Also found in aseptic and toxic diseases, uremia, septicemia, lead and phosphorous poisoning, chronic alcoholism and suppurative appendicitis. The heart and pulse action here is from 30 to 70, pulse being weak and small.

Symptoms - Here we find vertigo. In this case however a vaso-motor symptom well marked associated with ringing in the ears, flashes of blindness and sometimes convulsive spasms, vaso-motor condition. The first sound of the heart is soft and feeble while the second sound is often entirely seemingly obliterated and sometimes normal.

(3) This type is arrhythmia. Here we have an irregularity of the heart action marked by deficient periodicity in the rhythm, this is a symptom not a disease. Found in connection with valvular diseases, myocarditis, cardiac dilatation, atheroma of the coronary arteries of the aorta and the excessive use of stimulants. It is also specific in neurasthenia and hysteria. The irregularity of the heart action is primarily in its rhythm, secondarily an irregularity in the force of the beat, resulting thirdly in an intermittent heart beat. The only way we can diagnose it absolutely is by the sphygmograph and cardiograph. Get a tracing of the radial pulse and notice the condition of the pulse in heart tracing.

Treatment - I. (1) In all cases of cardiac neurosis look out for irritation along the spine either (a) hyperaesthesia or (b) anaesthesia. Typical lesions - (a) second and third D; (b) Seventh and eighth D; (c) twelfth D; (d) sacral region, tissues in sacral region hardened, thickened or tightened. Relieve these conditions by relieving the contracture of muscles, (a) either by inhibitory pressure in hyperaesthesia or (b) a gentle inhibition to overcome the anaesthesia.

(2) To treat tachycardia raise and spread the ribs to overcome (a) and (b) on both sides and lower the first rib if elevated at the same time correcting the clavicle.

(3) Apply stimulation to the pneumogastric nerve at atlas to occipital area and inhibition to the sympathetics by inhibiting at the superior and middle cervical ganglia and also stimulate the depressor nerve at head of the first rib.

(4) Try to find out the irritation outside of the heart and correct cause first. In some cases it is cerebral, in others gastro-intestinal. The way to find out the source is to watch the paroxysms. See how it effects the patient. If there is dyspnoea, there is a respiratory cause, if there is abdominal distress it is nausea and vomiting, and if its vasomotor you will find congestion in certain portions of the body, e.g., in the face or in the pelvis of the female.

(5) Give treatment to equalize the circulation, giving general treatment for the circulation first, and treatment for the superficial circulation last.

II. In bradycarditis stimulate the cervical sympathetics and inhibit the tenth cranial nerve at occiput in (1) organic diseases of the heart and in reflex (2) above clavicle, correcting any lesions found in the cervical region.

(b) Stimulate the depressor nerve and at the same time the vasomotor function in the splanchnic area.

(c) In case of feebleness in connection with the paroxysms is generally caused by a strong muscular contraction, sometimes caused or accompanied by muscular spasms, i.e., of heart and muscles generally. This interferes with the circulation making

the patient tired and causing the aching feeling. Overcome the muscular contraction or spasms by inhibition.

(d) Flexion and rotation of the limbs, articulation of the head and neck to get control of the peripheral blood circulation.

III. (3) Arrhythmia. Look for lesions in the cervical region, which interfere with the cardiac nerve supply and correct them at the same time, lightly stimulate the tenth cranial nerve at all its points in the neck and the vasomotors in the upper dorsal and lower dorsal to reach the heart through the pulmonary system to coordinate heart and lungs.

(2) Look to the condition of the first six ribs on the left side. Articulate or spread.

(3) Give rhythmic treatment at fourth and fifth dorsals.

(4) Look for the cause in connection with some disturbance causing irregularity of the heart action, e.g., if there is dyspnoea or asthma look to the second to fifth ribs. If there is an epigastric cause look to the splanchnic area for cause and lesions. If there is a hysterical condition or cause look to the upper C and lower D vertebrae. This applies in general to hysterical conditions. General gentle inhibition, followed by strong inhibition in the upper C and lower D ganglia will usually control it, if sympathetic.

(5) Look carefully to the cartilages in their relation to the diaphragm. See that they are acting normally. If not give the treatment to raise and spread out the diaphragm.

(4) Palpitation. - Here we have another neurosis resulting in the more or less paroxysmal rapid action of the heart. The patient being conscious both of the (a) symptoms leading to the palpitation and of (b) the change in the heart action itself. This means that the palpitation implies an increased irritability from the vital side. It also means an overactivity of the sympathetics.

In connection with palpitation - secondary to the vital irritation, we have two conditions in palpitation - (1) vital irritation from the conscious side on the cerebro-spinal plane; (2) over-activity in sympathetic system in local relation to heart, i.e., reflexes in stimulation of lungs, liver, etc. - We always find a change in the functional distribution of the heart energy. This means altered coordination on physiological side. This manifests itself by - (a) increased frequency of movement with (b) irregularity of rhythm and force. There is also a marked tendency to hypertrophy transitory. Palpitation may also be due to excessive muscular action or exertion, overeating, overdrinking, hysteria or menstrual disturbances, or in the changes of the blood in anemia and dyspepsia and toxemia. (Transitory palpitation occurs in hysteria). It comes on suddenly after preceding symptomatic disease. Associated with the change in heart movement we may have vertigo, the distressful feeling, eye-flashes, tingling or ringing of the ears and in some cases unconsciousness. Note that unconsciousness is here the reaction from hyperconsciousness. It is always paroxysmal in its nature, i.e., remember this condition is of altered dilatation of energy and a preceding vital incoordination.

Treatment - Primarily it is a vasomotor disturbance, hence the first treatment is strong inhibition in the vasomotor area

of the spine, followed by articulation.

(2) Give the patient absolute rest during the paroxysm. Lay the patient down in the recumbent posture and apply warmth to the surface of the body, especially to the hands and feet. Give the patient warm water; a little NaCl in the water assists in maintaining the isotonicity, followed by rhythmic treatment at the fourth and fifth D and begin by stimulation.

(3) While the paroxysm is on raise up quickly the arm over the head and at the same time put the finger under the clavicle on the left side and raise up the clavicle. Then put the patient on the right side still keeping left arm above head and put the knee in the interscapular area and pull left arm of the patient backward. This produces strong thoracic tension in the intercardiac and precordial areas and also internal expansion.

(4) Raise the ribs over the heart and lower the first rib. In asthmatic complications put the patient in a semirecumbent position and extend to fifth rib on left side.

(5) Stimulate the tenth cranial nerve just above the clavicle on left side and also at fourth and fifth ribs and inhibit the phrenic nerve just above clavicle on right side.

(6) Apply inhibition to the superior cervical ganglion on the left side also middle cervical ganglion on the left side, with patient lying on back. Give this inhibition quite strong.

(7) Look out for exciting causes and conditions in connection with the abdominal and pelvic organs and correct.

(8) Give strong inhibition at the spine from the sixth D down if the trouble is epigastric, from the first lumbar down if the exciting cause is pelvic.

(9) In case of cerebro-spinal hysteria or gastric producing palpitation give inhibition at third C and tenth D at same time.

(10) In case of vertigo the cause is a gastric toxemia and the vertigo represent is a vasomotor condition - here give strong inhibition in the vasomotor area.

(11) In case of phrenic nerve has a on venous side of circulation, than tenth cranial nerve over arterial side of circulation. Find out which of these sides of circulation predominate and inhibit nerve which corresponds with side predominates. Phrenic and tenth cranial alter in opposition to each other.

Angina Pectoris - Here we have a sudden paroxysm of intense nerve pain localized in precordial area and sometimes in the heart substance itself. It originates either (a) in the brachial plexus or (b) in the intrinsic heart ganglia. Second type of pain of heart to neck and from to shoulders, arms. In the first type it radiates from neck to arm and then from arm to heart and precordial region. (c) Toxic angina pectoris - toxic accumulations found in heart substance.

There is a violent paroxysm accompanied by a feeling of oppression just as if the patient's heart and thorax or heart or thorax were being crushed in a vise. Sometimes angina represents simply a symptom of certain diseases or changes of a morbid kind either in the heart, the coronary blood vessels or nerve plexuses, brachial or cardiac. Most frequently found in the male sex, in

patients from forty or upwards. Pseudo-angina is sometimes found in the female. It is found in connection with arterial sclerosis, especially of small arteries of the brachial plexus and hypertrophy of the heart, symptoms of aortic incompetency, aortic stenosis, and in any case increase in arterial tension or sclerotic changes of nerve tissue, especially in the brachial and cardiac plexuses. The exciting cause of paroxysm is (a) over-exertion; (b) mental excitement or over-concentration; (c) toxic accumulations, result of imperfect metabolism; (d) excessive use of stimulants, peculiarly characteristic angina when patient is full.

The lesions found are (a) in connection with the first five ribs particularly and corresponding vertebrae; (b) sometimes it is hereditary in connection with chronic affections such as the chronic results of syphilis and rheumatism, here we find lesions corresponding with the chronic.

Pathology - (1) Neurosis involving the brachial, cardiac or solar plexus or a combination or a reaction from some other sympathetic field, e.g., pelvic plexus; (2) morbid results or effects. The changes that are found are principally in the coronary arteries, sclerosis. This sometimes extends to the arterial system all over the body. (3) Sometimes there is an atheromatous condition and sometimes thrombosis. In either or both cases resultant degenerative changes take place. (4) Other morbid changes are found in the cardiac plexus, phrenic and the tenth cranial nerves and the brachial plexus. The primary changes are caused by an enlargement of lymphatics causing congestion or inflammation of the nerves or the plexuses - (a) congestion of lymphatic system; (b) enlargement of lymphatics; (c) congestion or inflammation of the nerves or plexuses or blood vessels.

Symptoms - (1) Angina is always paroxysmal, coming on suddenly or during or after over-exertion, or due to excessive functional action of certain organs or parts of the body like the arms or may be due to mental excitement. The pain is a part of the paroxysm.

(2) After the paroxysms are over the pain disappears entirely. And is followed by a condition of collapse - collapse affects weakest part of the organism. Two kinds of pain - (1) blood and (2) nerve pain. (2) is a nerve pain. The attack comes on suddenly, generally at night while patient is in bed. The pain is an intense one - (a) at first a sharp shooting pain; (b) later a crushing or crowding pain; (c) accompanying the pain is facial pallor, face becomes distorted of the facial features - (d) rapid breathing, fixation of the thorax, feeble respiration and heart action; (e) the pain is said to be grip-like or visco-like in the last form or stage; (f) accompanying the pain is a cold sweating condition, generally appearing first on the forehead, then down along the spine and then over the body; (g) the pain then radiates into the neck and arms, sometimes causing tingling and numbness of the fingers and over the precordial area. Pain generally lasts only a few seconds, the patient dying or being

relieved by relief of tension from symptoms. This relief of tension produces a reaction going to the weakest parts of the organism. When the patient is relieved there is generally vomiting or a sudden excessive flow of urine or both combined together. The effect of the attack is generally noticeable in cerebral conditions of the patient, e.g., this is the second reaction from the angina, the patient becomes gloomy and depressed, sometimes temporarily insane.

In the female sex the angina that is found is called pseudo-angina associated with hysteria or hysterical symptoms. (1) In the female sex it always begins in the abdominal cavity in connection with the solar plexus, the first symptom being great abdominal distension, like bloating; (2) This is followed by intense nervousness and restlessness.

General Symptoms - Flushing of the face, nervous irritability and other symptoms that are found in the real angina. Pathological conditions that are found in the female type are associated with the hypogastric or solar plexuses, indicating that is the starting point of the disturbance.

The death reaction is found in epilepsy and angina. In hysteria reaction is cerebral only.

Treatment - From its symptomatic side angina pectoris represents a paroxysmal spasm of the blood system localized in the strangulation or vaso-constriction of the coronary arteries. It is irritation in the nervous system, irritation being associated with the brachial, cardiac, aortic or hypogastric plexus. How can we differentiate from angina on one side and epilepsy and hysteria on the other? Angina is in plexus field, hysteria and epilepsy in spinal field.

(1) First treatment then is the same as in palpitation, namely, treatment of the great vasomotor area, by inhibition followed by articulation.

(2) As a prophylactic treatment keep the kidneys free by stimulating the blood supply to and from the kidneys, and also the excretory system - all kidney centers, ninth D to third L.

(3) Be very careful in the diet of the patient. Avoid all stimulants, either food or drink, especially excessive use of meat, also avoid food that takes a long time to digest. Make patient keep regular hours for eating and drinking and sleeping. Excessive use of fluids is also to be avoided. A milk diet is recommended by some.

(4) Stimulate the lung function in order to give sufficient supply of oxygen, stimulate adrenal secretion. To do this have patient take deep breathing exercise, pull the arms over the head and back and put knee in the interscapular area.

(5) Look to the condition of first and second ribs and also to eighth and ninth ribs. Relieve tenderness by frictional or vibratile treatment. Look to the corresponding vertebrae, the first, eighth to tenth D. Keep these vertebrae free by an articular treatment.

(6) During the paroxysm raise the ribs gently. Apply strong inhibition as a palliative treatment at first to third dorsals, raise clavicle and expand thorax, beginning at second D. Pull

patient's thorax well back. Put knee in the interscapular area and arms around under the axilla and pull the patient back.

(7) Strong inhibition at superior and middle cervical ganglia of the sympathetic. Also give light inhibition to the tenth cranial nerve on the left side high up in the neck for fainting.

(8) In the pseudo-angina (a) go to the lower D on left side give inhibition and (b) in the sacral region same treatment. The inhibition should extend from the seventh D to fifth L.

(9) The application of warmth to the superficial surface, especially the hands and feet, followed this by application of internal warmth is also very good. Red pepper in warm water is very good. Make the patient swallow it in an emergency case. When you give red pepper see that the kidneys are open.

(10) Leave patient in position in which patient is in hysteria. Do not change position of patient. This applies to epilepsy and hysteria.

In case of heart we have cardiac conditions causing palpitation - accumulation of foreign substances as uric acid, etc. The symptoms are - (1) delirium; (2) hysterical cough; (3) spasms or (4) reflex conditions caused by interference with the tenth cranial nerve or reflexly through structure of liver.

In case of conditions where causes are associated with pleura we find - (1) pleuritic effusion with pleurisy as reaction from irritation or pressure; (2) reflexly through the respiratory apparatus.

In the case of conditions where causes are associated with the blood we find - (a) changes in the heart; (b) changes in the general circulation or (3) incoordination of the pulmonary and systemic circulations.

In cases of of diaphragm we find, dyspnoea, deeper and more frequent breathing cause in or out of lung; (2) objectively the amount of air may be increased or decreased, more often a decrease; (3) sometimes there is a spasm of inspiratory and expiratory muscles; (4) In this case the diaphragm is involved on account of some interference with the phrenic nerve, either at the spinal origin or along its pathway of distribution.

In cases associated with the lungs we find morbid changes in lung tissue - air vessels, vesicles, mucous membrane of tube system and lung substance proper.

Symptoms we have are - pulmonary irritation and expectoration from lungs.

Changes of an obstructive nature caused by e.g., tumors, growths, actual lesions at spine or ribs or connection with ribs.

The symptoms are - (a) dyspnoea, obstruction produced by embolism, tumors, thrombus or capillary bronchitis; (b) cyanosis developed by some physical interference with lung or thorax - shown in anemic conditions where there is a deficiency in interchange of CO₂ and O.

Obstruction to nerve supply to lungs, reacting on the cystic circulation, e.g., lesions from 1 to 7 D or 10 cranial, phrenic and spinal nerves. - Symptoms - (a) spasmodic cough; (b) modified form of breathing, types of apnoea or dyspnoea.

Diseases of the Mediastinum.

The mediastinum is an appendage of the respiratory apparatus proper, but is connected with the heart as a medium of the heart and lungs physically.

Diseases of the Arterial System.

Arterial conditions may be found primary or secondary in relation to the heart or lungs. In some cases the condition of the arterial system is a material help in diagnosing the cardiac condition. (1) The most common symptomatic condition is abnormal arterial pulsation. The only normal pulsation that is perceptible is that of the carotids and radial, at side of head and ankle. Pulsation perceptible in any other - abnormal, e.g., in old people even in a state of health there is an aortic pulsation seen at markedly the episternal notch. This is found in abnormal conditions where . The abdominal aorta also pulsates perceptibly in some cases, particularly in emaciated subjects. The pulsation of the carotid when it becomes exaggerated indicates - (a) anemia; (b) exophthalmic goiter; (c) aortic regurgitation; (d) Atheroma; (e) aneurism of the aorta, or (f) aortic valvular disease. The innominate and subclavian pulsations indicate - (a) consolidated, shrunken or hardened condition of the lungs, find this is pneumonia. The pulsation of the thoracic aorta indicates aneurism of some part of the aorta, the pulsation being caused by pressure against the chest wall. Pulsation of the abdominal aorta is found in neurasthenia, found intermittent by a reflex from nervous dyspepsia and steadily in organic diseases of the organs in the upper part of the abdominal cavity, as liver, pancreas, spleen and stomach. Epigastric pulsation indicates an enlarged or hardened pancreas. Also found sometimes in tumors of the the stomach or omentum.

Differential Diagnosis - in case of tumor of the stomach or intestine if the patient lies on the back the tumor will fall away from the wall of the abdomen and the pulsation will disappear. This epigastric pulsation is also found in aneurism of the abdominal aorta as a persistent condition. In this case however there is also a thrill and murmur, aortic and dullness over the epigastric area. It also modifies the circulation causing a high tension of the arterial system all over the body. This is manifested principally in the femoral pulsation field. The pulsation of the small arteries indicates either arterial sclerosis or hypertrophy of the left ventricle of the heart.

The capillary pulsation - normally there is no capillary pulsation, the pulse of the arteries is buried in the muscles - is found for physical diagnosis beneath the fingernails and at the side of the mouth and in the skin. In skin in order to test - make the skin tense at first. It can be produced in any case when present by pressing the finger tightly down on any smooth surface and then can be felt. The capillary pulse is abnormal in tension in certain diseases, as diseases of the liver and aortic regurgitation. A similar pulse can be felt in the liver and the spleen by pressing down deeply the fingers right over the organs, when organs are abnormal.

Treatment - In all arterial diseases we find altered elasticity and treatment is vasomotor. (1) Changes in the tension of the blood vessels; (2) changes in the nutrition due to the capillary tension, this is due to contraction of the walls of the capillaries

associated with or caused by -

(a) Reflex muscular conditions;
(b) Increase of venous circulation away from capillaries;
(c) Increase of arterial circulation, this becomes too rapid to permit of nutritive.

(d) In capillary pulsation we find condition reflexes - cough usually reflex arising from irritation of toxin or odor of fungi bodies; dry cough is found where irritative conditions be removed;

(e) Hemorrhage due to weakness of air passages tubes or vessels sometimes to rupture;

(f) In congestion of lungs and infectious diseases involving lungs there is also an exudation;

(g) If pleuritic complications are found we find they cause pain. Along with the symptoms we note - (a) Physical condition of the lungs; (b) the physical conditions of thorax. Osteopathic examination of ribs, muscles and spine of patient is required.

(c) Physical conditions of respiratory movements in relation to coordination or incoordination of respiration, expiration or inspiration. In testing the subject of coordination note the thorax is divided into two parts. To each half - (a) to and including third rib; (b) from fourth rib down.

In incoordination of respiration there is - (a) immobility of first three ribs or (b) from fourth rib down. - Associated with these changes are malnutrition of other parts of body.

(3) The opposition of deep and superficial circulations - here basis we have in Head's law and treatment is required accordingly. These are the three things we are required to keep in mind in the treatment of arterial disease from the functional side.

(a) Take first the changes in tension. These depend primarily upon the condition of the heart, and secondarily (b) in the condition of the minute arterial circulation, i.e., vasomotor disturbance.

This indicates that in the treatment of any arterial disease with these conditions we must treat from this point of view, i.e., vasomotor side. In some cases both of these conditions are causative, i.e., tension and nutritive changes, treatment accordingly, i.e., from vasomotion and nutrition sides. In other cases only one is at fault and the one is compensatory to the other. In the majority of cases the primary trouble is a deficiency in the minute arterial circulation or the superficial circulation. This makes the primary trouble vasomotor in nature and in that case treat from the vasomotor standpoint.

Arterial Sclerosis - The intima of the blood vessels wall is here . This condition is also sometimes called arterio capillary fibrosis. Here we find - (1) Congestion of the blood; (2) Causing accumulation of fibrin, this (3) causes fibrinous formation presenting fibroid substance or fibrinous material; (4) here the intima of the arterial wall is thickened, this produced by - (a) inflammation involving the muscular coat, and secondarily causing an increase of (b) connective tissue and (c) resulting in fatty degeneration and sometimes (d) calcification of walls of the arteries.

It is found as a result of the wearing out of the walls in old age and late middle life or premature conditions. The nature of the onset depends upon two things - first the condition of the arterial tension, e.g., in some cases it comes on quite early in life when the arterial walls are deficient either hereditary from neurosis or congenitally. Second, it also depends upon the degree of activity of the individual and the state of nutrition of the arterial walls, e.g., in a person doing hard work involving a strain on the arterial system, especially where the patient is in a bad state of nutrition or is not getting enough or proper food to repair the wear and tear. It also develops in connection with the intoxication of the system by alcohol, the toxin of goit, rheumatism, syphilis, or Bright's disease, these conditions of toxicosis being foundation for future arterio-sclerosis.

In this case the exciting cause is hyperfunctioning, overwork, overeating, undersleeping, or the use of calcareous water. When substances are introduced into the system, like toxins, either taken into or produced by the system, they keep up a persistent spasmodic tension of the small blood vessels resulting in changes in the arterial walls and difficulty of blood circulation through the capillaries. The most virulent of all these is the syphilitic toxin. This causes inflammation and degeneration of the arterial walls by poisoning.

In renal diseases we also find a primary sclerosis caused by the morbid substances acting on the arterial walls.

Pathology - Overeating and overdrinking also keep up an abnormal overtension of the arterial walls. Overwork with a bad nutritive state increases the peripheral resistance causing deposits because of the retarded blood circulation. This causes the thickening of the walls which becomes hard, thick and tortuous. In some cases the inner wall is entirely obliterated and is replaced by calcareous plates. In other cases the endothelium becomes the seat of abscesses and fatty degeneration of the coatings of the blood vessels taking place. The thickening of the wall is caused by an increase of connective tissue and this in later stage becomes fibroid substance or fibrinous material.

History - Cause of pathology is (1) hypertension; (2) bad nutrition; (3) deposit of waste; (4) hardening and thickening of the walls. - The morbid anatomy is represented by (3) and (4)

Symptoms - These may be either local or general. (1) general indicating the affection of the entire arterial system with changes in tension settling down in the capillary system. Why? Because it has no resisting power, i.e., vaso-motor. (2) Local, these arise where the emboli block up the circulation causing rupture, hemorrhage, apoplexy, etc., with corresponding symptoms. (3) The sclerosis condition is recognized by physical signs found in the blood vessels and the heart, e.g., (a) the blood vessels become elongated and tortuous; (b) there is a perceptible pulsation in the arterial system caused by the hardening of the walls; (c) the artery feels hard, just like a little cord, and here we have the incompressible artery and pulse; (d) the pulse is always of a high tension and the ascending wave or upstroke is always slow; (e) in the heart there is hypertrophy. This is one

of the first signs of arterial sclerosis. This condition of the heart is compensatory, caused by great peripheral resistance due to hardening. The hypertrophy especially involves the left ventricle. (f) The apex beat is found diffused or disseminated. The second sound is found very clear along the cartilages of the ribs and along the paths of arterial blood supply, e.g., abdominal artery, femoral artery and the carotids. (g) there is a systolic murmur, muscular sound of a very high pitch; (h) there are also the symptoms of renal disease, polyuria, albuminuria, hyaline casts, etc. After these symptoms develop all the other symptoms disappear.

(i) Following these obstructive symptoms we sometimes find gangrene of the extremity tissues due to rupture, hæmiplegia, apoplexy, aphasia, angina symptoms due to the obstruction of the coronary circulation; (j) if the hypertrophy of the heart does not develop by compensation or is overcome, then cardiac dilatation follows as a secondary compensation. In this case we get symptoms of cyanosis, dropsical symptoms in the abdomen, venous ascites. (k) In some cases instead of the heart compensation we find kidneys compensation. Here we have resistance developed by the kidneys. The kidneys becoming contracted and hardened with resultant interstitial nephritis. Here there is an increase in the quantity of urine which is pale in color and of a very low specific gravity - over 310

Treatment - (1) Condition here is one of congestion, i.e., a secondary vasomotor condition. Treatment called for here is in the vaso-motor field.

(2) (a) In regard to changes of nutrition these depend primarily on toxic elements passing around the circulation of the blood. Here we are required to attend to - (a) to the kind of food and water used by the patient, e.g., if excessively hard water it should be softened, maximum of proteid food; (b) moderation in activity is required to prevent the overtraining of the arterial system, e.g., no excessive action that will involve a strain on the muscular system; (c) regularity in meals and in hours both sleeping and walking.

Remember that the end products of sleeping and waking are different in the body and any disturbance in the balance of these products always affects the minute arterial system, e.g., under-sleep, oversleep, and overwakefulness.

(3) We have to deal with the opposition between the superficial and deep circulation. The primary cause of the arterio-sclerosis is an unbalance of these two. This is one of the most fundamental points in the circulation of the blood. It represents the struggle for existence. At the basis of this lies Head's Law. Arterio sclerosis gives tendency to drive blood to deep circulation.

Applied to the body this indicates that the heart represents low sensibility and the non-sensitive condition. There ought to be no consciousness of the heart and its processes because the accelerator side of the heart's action is sympathetic, at the same time the heart and the other visceral organs have sensory nerves which all lead in the direction of the cerebrum so that

consciousness brings reflex sensations from the visceral localized points. This reflex sensation is what frequently produces irritation effects on the heart, lungs, liver, etc., it is this that causes pain under the right scapula in congestion of the liver. Inflammation of the stomach produces similarly an aching pain in the middle dorsal region. This also accounts for that fact that hyperesthesia or anesthesia is found in every disease of the body because the spinal areas are segments which represent the visceral points of high sensibility, consequently in all these reflex conditions the spinal segments are in a state of irritation, pain, sensitiveness, soreness, tenderness, being the expression of this irritation.

Whenever these are found inhibitory treatment is called for, first to lessen the pain, tenderness, etc., and second to abort the abnormal reflexes resulting from the pain, tenderness, etc., third to set up a series of counter-impulses to the center that will oppose the abnormal impulses, fourth to establish the restoration of the processes of repair. Inhibition here is heat in order to establish or attempt to restore balance of superficial and deep circulations.

Inhibition has a threefold effect on the sensorium - (a) primarily through the cerebro-spinal treatment; (b) secondarily on the local parts that manifest pain, tenderness, etc., (c) thirdly on the viscera connected to the spine through the sympathetic system.

The blood and arterial system represent in this sense a viscus, hence, any change in tension or nutrition involves the involuntary muscular system in the visceral walls, e.g., we effect - (a) the caliber of the blood vessels through the cerebro-spinal system; (b) their relation to the voluntary muscles through the vasomotor areas in the spinal column.

Hence, in general the treatment of arterial sclerosis there are a number of points to be attended to -

- (a) Attempt to control the cerebro-spinal system and its muscles;
- (b) Attempt to gain control of the vaso-motor system through the upper cervical region via the medulla;
- (c) Coordinate the two nervous systems by articulatory treatment along the spine;
- (d) Look out for the condition that produces the irritation, eliminating toxins of gout, syphilis, rheumatism, etc., by proper treatment through excretory system;
- (e) Equalize the circulation, beginning treatment with the superficial circulation;
- (f) Keep intestines, kidneys and lymphatics active to prevent congestive conditions in these organs and at the same time overcome the peripheral resistance - relaxing treatment to the arms and limbs and then articulating treatment;
- (g) Keep skin in state of normal activity by use of daily sponge bath and massaging of the skin. If there is a state of malnutrition of the skin the use of olive oil is recommended, either goose oil or olive oil. Codliver oil is good for rickety children. Olive oil is good for varicose veins where there is malnutrition around the vein. Anoint the vein but do not rub.

Keep down peripheral resistance.

(4) Diet. Here the condition is one of toxemia and the diet must be as simple as possible, i.e., diet that does not produce gastric accumulation of gas, waste, etc. Balance up nutrition by examination of excreta.

Aneurism - This is really a sub-type of arterial sclerosis.

(1) It is found most commonly in connection with the dilation of one or more of the coats of an aorta. This is what is called true aneurism. Of this type there are several subdivisions, e.g., aneurisms are either cylindrical or fusiform and circumscribed or scapular. The fusiform and scapular are the most prominent, they are the most common.

(2) False aneurism is found where there is alteration of some kind in the arterial coat, the blood acting as a dissector between the coat, hence the name Dissecting Aneurism.

Aneurism is found most commonly in the aorta. This is true of the true type. It usually begins quite close to the heart and passes along the coat of the artery. False aneurism also begins close to the heart and separates the arterial coats sometimes as far as the iliac arterial circulation.

(3) There is an arterio-venous type of aneurism, in which communication is established between an artery and a vein, or the reverse order - a real type of aneurism of an artery or vein. This is found in two forms - (1) formation of a sac. This is called the varicose aneurism, where we have the sac lying between the arteries and a vein. (2) This type is where the distension of the vein results from direct communication between the artery and the vein, the artery projecting its free surface along the vein and as a result dilating the vein, i.e., there is no sac found of artery and vein but vein becomes a sac.

Aneurism sometimes is found during the course of arterio-sclerosis, resulting from the distention of the aorta. In this case you get a sacculated aneurism, the deficiency in the wall generally being in connection with the middle coating. It is also found in the smaller blood-vessels in connection with emboli, the embolus closing the vessel and the proximal portion of the vessel being dilated.

(4) Another type is the mycotic aneurism. This is found in connection with malignant myocarditis and endocarditis. Here we have a number of small aneurisms instead of one large aneurism.

(5) Another type is the traumatic aneurism which is produced by sudden severe strain of the blood system, especially where there is an intoxicated condition of the system, e.g., symptoms of intoxication by syphilis, cancer, gout, rheumatism, etc.

The most common type is aneurism of the arch of the aorta-thoracic - found at the point of junction that transverse and ascending aorta sometimes, in the transverse or in the descending.

I. Descending Aorta - Symptoms - Aneurism frequently exist for some time without appreciable symptoms. (1) The first symptom to be appreciated is the pressure symptom which is caused by the tumor formation of the aneurism. In the aneurism of the descending aorta there is a displacement of the arch either outward or to the right or forward.

(2) In some cases there is erosion of the bones in connection with the ribs or sternum, causing compressive symptoms, e.g., compression of the vena cava with distention of the veins, especially in the neck, frequently extending in the arms and head, compression of the subclavian artery producing oedema of the right arm and sometimes oedema of the thorax. If the aneurism is large the inferior vena cava is also compressed and there is oedema of the lower extremities.

(3) There is also another symptom of compression resulting in irritation of the right laryngeal nerve causing dyspnoea and loss of voice.

II. Second type is aneurism of the transverse part of the aorta. (1) In this case the aneurism projects downward and either forward or backward. If it is forward it is a tumor or a tumorous condition lying underneath the manubrium which by pressure causes pain and if continued osseous destruction. If it is backward there are pressure symptoms, e.g., pressure in the trachea with cough and dyspnoea, pressure on the oesophagus giving dysphagia, pressure on the left recurrent laryngeal nerve, producing paralysis of the vocal cords and loss of voice, pressure on the bronchi producing bronchitis.

(2) This pressure often results in abscess formation. (3) The growth may extend upward for example, into the walls of the carotid and right innominate or into the subclavian on the left side. Then we have pressure on the sympathetic system with accelerated function of viscera and causing the contraction of one of the eyes, generally there follows dilatation of the pupil.

(4) The last symptom is pressure on the thoracic duct resulting in the emaciation of the patient, cutting off the lymphatic circulation.

III. This is aneurism of the descending portion of the arch of aorta. (1) Here the pressure symptoms are less marked, but pain is one of the principal symptoms, caused by pressure on the vertebrae, posterior to thorax. The pressure symptoms found are pressure on the oesophagus giving dysphasia and dyspnoea pressure on the left bronchus giving an asthmatic breathing.

(2) This results sometimes in a periodical febrile temperature.

(3) Sometimes also rupture of the blood vessels and gangrene follows. Where the pain is present it is always paroxysmal.

(4) Another symptom is intercostal pain almost like neuralgia, the pain being greater if the patient leans forward or lies on the chest.

(5) Here we find angina symptoms, sometimes neuralgia along the path of the thoracic nerves.

(6) Cough when present is of metallic type, due to the pressure on the recurrent laryngeal nerves. The paroxysm of cough is due to pressure on the trachea, or to pressure on the bronchus.

(8) There is similarly laryngismus stridulus caused by compression of the left bronchus. If the recurrent laryngeal is involved by pressure there is either a spasmodic condition or paralysis of vocalization, sometimes there is pressure on the tenth cranial nerve, producing vomiting.

(9) Another well marked symptom is pressure on the sympathetic system causing - (a) unilateral sweating and pallor on one side

of the face, dilation of the pupil of the eye due to pressure upon the dilator fibers of the sympathetic system from the ciliospinal center. If the pupil is contracted there is a hyperemia of one side of the face, sometimes slight hemorrhage being due to rupture of the sac into the tracks or bronchi of the lungs.

(10) Another symptom is pulsation at the episternal notch. The pulsation here is an expansile pulsation and there is a systolic impulse associated with the aneurismal sac and a systolic murmur corresponding with the first sound of the heart, the second sound being intensified.

IV. Aneurism involving the abdominal aorta. The most common location of this aneurism is near the caeliac axis. Symptoms are: (1) Pain in the back at the level of the aneurism, or pain radiating around the sides toward the back from seat of aneurism; Femoral pulsation becomes retarded, is difficult to make out; (3) Vomiting is also found, marked pulsation in the epigastrium, the pulsation being expansile over the epigastrium, systolic murmur.

Treatment - Diet and hygiene. Give patient as much rest as possible and in severe cases keep patient in bed. If up, keep patient from overexertion, excitement and all exciting foods and drinks. Give dry food, limiting amount of fluid so as to keep down the volume of blood. Follow out the principles of rest cure, except as to dry diet in place of fluid, in the severe cases.

(1) In addition to the above the direct treatment of the condition requires the attention to three points: (1) To diminish the blood pressure within the muscular system so as to allow the blood to become as static as possible; (2) To lessen or remove pressure upon muscles, nerves and bones, to remove the secondary effects such as cough, pain, etc; (3) To restore the normal tonicity to blood vessel walls; (4) In attempt to lessen the pressure in the vascular system in general as an aid to coagulation either in connection with or within the aneurism; Reduce to a minimum all resistance to blood pressure by stimulating the superior cervical ganglion and to lessen tension all over.

(a) Stimulate kidneys for elimination; (b) stimulate vasodilators; (c) relieve tension of diaphragm; (d) Strong vasomotor treatment given in the upper cervical region with treatment in dorsal region corresponding to aneurism. This is done in several ways;

(1) By relieving the circulation of all resistance especially peripheral by attempt to control superficial circulation at fourth and fifth dorsal. Correct any lesion found and give rhythmic treatment. This reaches the cardiac rhythm and the superficial circulation, also relieve tension.

(2) If there is tension or resistance anywhere in the kidneys, give treatment correspondingly, i.e., stimulate urine elimination from kidney and bladder sides.

(3) Give treatment for equalizing the circulation by - (a) treatment of fourth and fifth dorsal; (b) sacral region.

(4) Give strong vasomotor treatment, beginning with strong stimulation in the neck and in the part of the spine corresponding with the aneurism, e.g., in the thoracic aorta give treatment in the lower cervical and upper dorsal, in the abdominal aorta treat in the lower dorsal and upper lumbar.

(5) Relieve tension on diaphragm by raising the same. To do this raise the cartilages.

(6) Give patient absolute rest in bed, have patient on back. Diet should be dry. Best things to eat are eggs and bread.

(7) As an aid in abdominal aneurism, mechanical pressure on the proximal end of the abdominal aorta a bandage and compress will assist coagulation, e.g., bind something solid at some point between the heart and the aneurism if possible. Keep it on for 24 hours. Put it on again if necessary for a few hours, also ligate the leg from knee to hip to slow up circulation.

Correct Lesions. (1) Relieve the tenth cranial nerve along the side of the trachea and at the lower margin of the thyroid bodies. Any contraction of soft tissues that is found there must be removed, then press the fingers in at the point of the clavicular attachment of the sternum, principally on right side.

(2) Relieve the recurrent laryngeal nerve along the side of the trachea and at the lower margin of the thyroid bodies.

(3) Relieve the sympathetic system by thorough relaxation of the muscles in the cervical and upper dorsal areas.

(4) Manipulate the muscles of the neck, pulling them forward from the spinous processes and downward, rotating, extending or articulating the neck to free the phrenic nerve and tenth cranial, also the recurrent laryngeal nerve, stretch and make them all act together.

(5) Expansion of the chest by spreading out the ribs and raising them if necessary with diaphragm.

(6) Treat nutritive centers of spine, fourth to seventh dorsal, so as to reach entire body from nutritive side.

(7) Stimulate the function of nutrition in connection with the heart and trophic centers by spinal articulation.

(8) Stimulate the vasomotor system. If it is a case of false aneurism stimulate the entire vasomotor region of the spine.

(9) In abdominal aneurism give strong inhibition on both sides of the spine, treatment at the point of pain and continue the inhibition upward along the spine.

Aneurism of the coronary arteries - The most common condition here is atheroma of the arteries, the aneurism being secondary to the atheroma. The causes of this condition are associated with endocarditis extending to the arterial system by or infection. This effects the nutrition of the heart either through emboli or by some form of occlusion of the coronary artery. Often patients die suddenly through this occlusion, especially where there is myocarditis undercurrent. In this case no symptoms may be found at all until - (a) precordial oppression occurs, followed by (b) angina symptoms, accompanied by (c) dyspnoea; (d) dilatation of the heart; (e) stasis of the blood, especially venous, showing itself in the jugular. The heart becomes suddenly very active, the arrhythmic and finally stops beating. This is sometimes what is called cardiac apoplexy, causing death.

Treatment - Remember this condition is always secondary to endocarditis or myocarditis, sometimes it is complicated by valvulitis and the symptomatic side of angina pectoris. The only thing that can be done in a case of this kind is to give palliative treatment. There are three ways in which palliative treatment can be applied in this case;

(1) Treatment applied by inhibition to the center for cardiac rhythm, fourth and fifth dorsal area, with relaxing treatment of the muscles in the same area, both above and below. Almost always in these cases there is a tendency to curving of the spine, either anterior or posterior curve of the spine. Here give the patient articulating treatment, applying articulation with patient on left side. Wherever you have a patient with a tendency to stooping, don't put patient on face, but make him lie straight as the patient is liable to collapse, owing to tension on heart and lungs.

(2) Treatment applied to the diaphragm, pulling it out, stretching and expanding it. Sometimes you can do it in the coagulation process by holding on to the expansion of the diaphragm some little time to assist in regurgitation by action of the aorta. The best position for the patient for giving treatment is on the back with head and shoulders elevated.

(3) Stimulate the vasomotors to the heart in the upper cervical and upper dorsal areas on both sides of the spine, particularly on the left side. In case of regurgitation have patient sit up while giving vaso-motor treatment.

(4) Diet and hygiene same as in endocarditis.

Venous Diseases - In the venous diseases we are dependent largely upon physical conditions. The venous circulation is largely a physical process, among these conditions we note; (1) the action of the valves the current of blood; (2) the pressure in thorax, abdomen and the blood field proper; (3) The action of the muscles and organs. Here we have elasticity, rhythm

(4) Blood pressure.

Venous diseases were at one time considered almost entirely surgical cases. Modern investigation in physiology has demonstrated that the physical and physiological elements in the venous circulation represent the most important factors in the circulation. In the veins as distinguished from the arteries there is a small elastic element, hence the condition found in venous diseases are mostly local rather than general. General venous diseases are evidenced principally by the condition of the jugular veins. Local conditions which are expressed chiefly more numerous take into account the subcutaneous veins.

Venous diseases call for a physical examination all over the entire body, especially in connection with - (a) possible pulsation of the veins; (b) possible conditions of compression; (c) the presence of thrills and murmurs. Physical examination indicates any increase and enlargement of the veins as of general or local condition or both combined together.

In all cases the primary sign is to be looked for in an interference with the return flow of blood. In general this is indicated by the condition of the jugular veins - (a) the enlargement or engorgement of the veins accompanied by oedema, cyanosis, effusion on the serous surface, i.e., congestion of the serous fluid or field. Then these are found there is a deep-seated condition generally associated with the right side of the heart, as dilatation of the right auricle or right ventricle. This may be caused by preceding myocarditis, pericarditis, valvulitis, emphysema or mediastinal tumors pressing on the vena cava. The jugular veins are usually distended both the internal and external branches with distention of jugular pulse. The position of the veins is best noticed in connection with the sterno-mastoid muscle. The internal jugular is best located in connection with the supra-clavicular fossa just behind the sterno-clavicular articulation. At that point you can feel and sometimes see the jugular bulb raised up and projected outward. Locally there is an increase due to the closure of the venous system by pressure, e.g., mediastinal tumor, thrombosis, pressing down on the vena cava. Here the symptoms are the distended veins on the scalp. The tortuosity of the veins, found in connection with thrombosis. Engorgement of the blood in the longitudinal sinus indicated by the pressure aching over the path of some enlarged veins in the neck, arms, leg, etc., in thrombosis of the axillary or femoral vein there is oedema of the extremities, engorgement of the superficial thoracic veins found in inter-thoracic pressure caused by aneurism. In the obstruction of the vena cava there is engorgement of the veins of both extremities. Engorgement of the portal vein, distension of the abdominal veins superficially.

A typical symptom of venous disease is pulsation of the veins. This is produced by interference with respiration or by interference with reflex side heart action. In the first case it is seen in the veins of the neck during inspiration, exaggerated when the expiration becomes forced, as in cough, typically in whooping or asthmatic cough. In the second case the pulsation of the veins of the neck are found in the form of a typical venous pulse, synchronous with the action of the heart - (a) this pulse is not caused by the positive action of the heart. It is best found by pressing the fingers against the middle of the jugular vein, the pulsation being pre-systolic. During systole and venous pulse disappears, gradually dilating during diastole, and the veins being quite full before the systole; (b) the pathological venous pulse is always systolic and in this case is due to positive action of the right ventricle of the heart, e.g., in tricuspid regurgitation the right auricle, there is regurgitation of blood. The regurgitation wave being transmitted to the vena cava on account of the tricuspid valve incompetency.

Another strong symptom or evidence of venous condition is the presence of the murmur. In normal states of health there is no murmur, hence the murmur heard in connection with the jugular vein indicates a pathological condition of the venous system, e.g., in anemia, especially in chlorosis or obstruction anywhere in the venous system.

Treatment - In all venous conditions the physical conditions of the heart and circulations are the conditions at fault.

(1) That this is the weakest point of the circulation due to lack of elasticity. The weakness is generally aggravated by the force of gravity, gravity acting against the venous circulation. This makes the venous system more liable to obstruction than any portion of the circulatory system. (2) The weaknesses become more serious when we remember that we can reach the venous blood only indirectly.

(3) Any pressure or congestion of blood rapidly produces a profound effect upon the venous system, because it is the return system of the circulation, i.e., it lies between the peripheral resistance and heart force on the negative side of the circulation. This indicates that the treatment of all the venous diseases must be accomplished by the use of peripheral resistance and secondarily the heart suction force on right side as the means of reaching the venous system. The main point here is to increase peripheral resistance. This is done by the stimulation of the depressor nerve at the head of the first rib.

(4) The great cause of venous disease is the obstruction to the circulation, hence, partial or complete stasis of the venous blood is the condition that we have to deal with. The principal point then is to equalize the circulation of the blood, at fourth and fifth dorsal and sacral regions.

(5) All capillary congestions and absorptions are due to return of venous blood flow, e.g., if the mucous membrane (a) is red and congested as in catarrh of any kind the original condition is venous stasis, e.g., pressure of the clavicle and first rib in reaction to thirst and with catarrh; (b) following this congestion we have exudation with pain, (a) congestion; (b) exudation, (c) toxic condition, the exudation representing a toxic condition and it is the toxin which irritates and causes the pain. The best way to relieve the pain of coryza and such pains is by (a) treatment to the general circulation and (b) stimulation to the kidneys.

(6) In the treatment of all venous diseases the things to remember are - (a) the heart in connection with its negative pressure. The negative pressure of the heart starts in the ventricle and is radiated back to the auricle, hence to increase the suction force we must increase the activity of the right ventricle. This is done in two ways - (a) through increased action of the lungs vasomotorly, articulate second to seventh dorsal; (b) direct treatment of the right side of the heart in the spinal region, second and third dorsal for the right side of the heart. (b) Peripheral pressure or resistance. In these venous diseases we must always increase the peripheral pressure or resistance because it represents the remains of the heart force and is therefore the basis of the venous circulation, i.e., it is the force which the venous system has at the beginning of the venous circulation, i.e., if there is any driving force on the venous side it is this peripheral resistance. Peripheral pressure is converted into a venous force which opens the valves of the venous system toward the heart. Peripheral resistance is increased -

(1) by strong stimulation of the heart through its accelerators - third to fifth cervical, X.C.G. and in relation to second and third ribs;

(2) treatment of the vasomotors to cause peripheral constriction from the arteriole side. Strong stimulatory treatment at second dorsal to second lumbar. This is also the treatment for hemorrhage from venous side. In case of hemorrhage along with the venous condition treat fourth to sixth cervicals and fourth and fifth dorsals.

(3) Stimulation of muscular action. The veins pass through and between the muscles, hence if the muscles are inactive, or relaxed the venous blood will be sluggish, hence stimulate muscular contraction and rhythm in order to increase venous blood circulation.

(4) The venous blood is always most strongly and directly influenced by respiratory action, e.g., the intra-thoracic suction force or negative pressure produced by respiratory action acts as a pulling force drawing the blood into the thorax and sending it through the right heart. What ever treatment you can give to increase the respiratory ^{action} will apply in this case, e.g., treatment to the lungs, etc.

(7) Diet and hygiene. In venous diseases the diet of the patient should be limited, i.e., to minimum, both in total quantity of food and proximate principles. Exercise in the majority of venous diseases is counterindicated - rupture is liable to take place as a result of exercise.

Hemorrhoids - Here we have an overdilated or varicose condition of the veins involving the nerve plexus of veins that lies in the submucous tissue of the lower rectum. Sometimes the primary dilation extends to the adjoining tissues, e.g., as far up as the mucous membrane of the of the portal vein. In most cases of hemorrhoids the origin of the venous congestion is in the portal system. Sometimes the congestion develops into an absolutely static condition of the blood involving the peri-rectal tissues and particularly the peri-rectal plexus. In some cases it also extends to the venous plexus of the bladder, uterus, vagina and sometimes to lower part of the spinal canal itself.

Exciting cause is generally some factor in dietetic field. Hemorrhoids are caused by overactivity of the liver. Predisposing cause is formation of bile, this being thrown into blood. Effect of bile on the blood is thickening. Similar condition in excessive use of coffee.

(1) The external type which is found involving the external border of anus outside external sphincter muscle. This type differs from the others in the fact that it is always associated with skin and mucous membrane and secondarily the hypertrophied condition of the connective tissue - forming a cutaneous or superficial tumor. In some cases it forms an entire ring mass around outer margin of anus. In others it is simply a sacculated condition of the mucous membrane, sac body being filled with coagulated blood. This type is the most simple but difficult to deal with.

(2) The internal type. Here we have a dilated vein internal to the external sphincter muscle forming a sac, connection being established between this sac and the hypertrophied connective tissue. These become organized and form tissue tumors. This is the true hemorrhoid. The exciting cause of these hemorrhoidal conditions are almost always due to some deficiency in the middle hemorrhoidal, anterior internal iliac blood supply involving back of this the general visceral blood supply. The venous enlargement may be either single or multiple, small or great, the continued enlargement or engorgement resulting in a change of the mucous membrane or sub-mucous tissue and sometimes producing a catarrh of the rectum.

This frequently extends inwards as a hyperplasia to the internal mucous membrane and gives a catarrh of the intestines. Following the involvement of the hemorrhoidal circulation we find two conditions - (a) the static condition of the blood supply; (b) the hyperplastic condition of the connective tissue, leading up to the formation of hemorrhoidal tumor. The second stage of hemorrhoids is tumor formation, i.e., at first the hemorrhoids are blood tumors, when they become chronic they are connective tissue tumors, the pathology of hemorrhoids is two-folds; (1) accumulate blood; (2) connective tissue accumulation. (3) As the pressure increases there is a pressure produced by the enlargement of the tumor. This pressure in connection with the varicose veins results in atrophy of the mucous or submucous tissue. (4) In the latter stages we have white hemorrhoids produced by inflammation and thickening and suppuration of the previously existing hemorrhoidal tumor.

Etiology - The principal predisposing causes in connection with hemorrhoids are the (1) erect position of the body; (2) the imperfect action of the venous blood system; especially the hemorrhoidal venous system. In the hemorrhoidal veins there are no valves. Wherever we have a sufficient action of the valves anywhere in the venous system it will react on the hemorrhoidal veins; (3) Among the most common exciting causes we find obstruction to the portal blood supply either directly in the portal blood system or its terminus in the liver. The obstruction causes a backward movement of the column of the blood producing venous stasis and enlargement with dilatation of the capillaries in the rectal area. This obstruction may arise from anything that interferes with the portal circulation, as cirrhosis of the liver, cancer of the liver, enlargement of the liver, heart diseases, obstruction to the circulation of blood through the lungs, pressure of tumors right over the portal circulation, uterine congestion, also uterine inflammation or prolapsus. (4) Absence of normal tonicity in abdominal walls, especially in the female sex, may be due to excessive stimulants with lack of exercise. (5) Subluxations of vertebrae in lumbar, sacral and coccygeal regions, also lesions of the innominate; (6) Genito-urinary conditions, if fibroid tumors are present, chronic constipation with all accompanying lesions.

Symptoms - Here we have three types of symptoms - (a) Pain, generally localized and usually following the action of the bowels, sometimes there is the pain of pressure with itching and burning

sensations of the pelvic organs, sometimes with inflammation and congestion when the uterus is involved, pain of inhibition when defecation process is retarded or difficult. In this case there is always associated with it secondarily headache, vertigo, produced by the absorption of toxins from the lower part of the intestines. Along with the pain these are frequently catarrhal symptoms sometimes a chronic catarrh of the rectum and lower intestines, or of the entire intestinal tract or a discharge of mucous. In this case there is frequently the establishment of a fistula. (2) The rectal tenesmus, the spasmodic contraction of the sphincter muscle. Here the spasm is either single or multiple (3) Hemorrhage is sometimes the only symptom of hemorrhoids, particularly the intestinal type. This is particularly the case if the hemorrhoids are checked or attempted to abort by the use of cold water or rectal ice pack. This nearly always gives rise to disturbances in other parts of the body, congestive headache, congestion of the lungs, liver, stomach and kidneys. The hemorrhage may develop in any of these organs. Then tumors develop either in the organized or unorganized form the contraction of the sphincters are interfered with and here we get rectal tenesmus, with external hemorrhoids. (4) In old people we frequently get symptoms of a varicose condition of the veins at the neck of the bladder or in connection with the uterus. In some rare conditions there are cases of a varicose condition of the venous plexuses extending upward and backward as far as the spinal canal. Here we have an intensely aggravated condition of the spine, with typical pain in lower dorsal and lumbar regions. Sometimes this results from the erosion of certain parts of the spinal column.

In internal hemorrhoids the primary cause is nearly always congestion of the portal system. Here we get symptoms of - (a) portal stasis and (b) portal obstruction. In some syphilitic or cancerous patients the localized hemorrhoidal tumors will become malignant through infection from the toxin from the cancer and syphilis. Here we may find additional ~~symptoms~~ - (1) marked febrile temperature and (2) marked emaciation of the patient.

Treatment - we have to deal with here - (a) stasis of the blood circulation; (b) with some obstruction causing stasis; (c) with the accumulation of blood in the localized field of the hemorrhoids with secondary toxic conditions. The rectum gets its blood supply from the internal pudic artery through the inferior hemorrhoidal branch. The venous system of drainage from the rectum begins at the lower part of the rectum, the hemorrhoidal veins uniting in connection with the formation of the inferior mesenteric veins. The middle and inferior hemorrhoidal veins together with the superior through the inferior mesenteric all terminate in connection with the internal iliac circulation and the portal system. This makes a direct venous communication between the rectal venous blood on the one side and the portal blood through the internal iliac. In this system of venous blood we find anastomosis - (1) between the portal vein and the branches of the vena cava; (2) anastomosis between the portal system of veins in communication between the gastric veins, also the left renal veins and the intestinal veins, of duodenum and upper part of

the colon; (3) Also between the hepatic veins and the veins of the round ligaments and the portal veins between the superficial portal vein and the phrenic veins. Consequently, the hemorrhoidal veins collect together through the capillaries, all return venous blood from the arterial blood of the lower extremities and pelvis emptying it after this collection first into the inferior mesenteric, then into the internal iliac, hence any obstruction interfering with the return of blood into any of these systems causes a varicose condition of the veins and anything obstructing the return of blood through the iliac or mesenteric veins will cause an accumulation of blood in the rectal area, dilatation of the rectal veins which is the primary cause of hemorrhoids.

Hemorrhoids generally represent, from the osteopathic standpoint - (1) an irritation or pressure upon some branch or branches of the veins and congestion; (2) a primary irritation by some pressure on the sympathetic nervous system. This means that the type of condition found in hemorrhoids is the visceral or visceromotor. This may be direct pressure on the sympathetic system in the rectal area or it may be an indirect condition of the venous blood affecting the sympathetic system in general, reacting upon the secretion field. The latter case may represent congestion of the liver, spleen, congestion of the duodenum or transverse colon and congestion of the sigmoid flexure due to fecal accumulation. Sometimes hemorrhoids are due to the use of drugs, as aloes, act specifically on the lower rectum, or on sigmoid flexure. The effects of this drug if taken are - (1) chronic constipation; (2) producing intense relaxation upon the walls of the rectum, loss of tonicity and prolapse; (3) aggravated accumulation of venous blood.

Excessive irritation of the sphincter muscles of rectum is also a cause producing loss of tonicity, e.g., one of the most common conditions we find here is the use of the dilating speculum to dilate the rectum in cases of constipation. This method is very good if not used too frequently. It should not be used more than once a week as you might get the reaction and loss of tonicity of the walls.

Pressure directly upon the hemorrhoidal plexus of nerves may also be a cause of hemorrhoids, inflammation of the surrounding tissues due to pelvic congestion, the accumulation of connective tissue in the pelvic area and excessive formations of adipose tissue in the abdominal area, also the use of straight front corsets is a fruitful cause of hemorrhoids among women.

Sometimes the hemorrhoidal tumors are formed in connection with the folding of the muscle tissue in the walls of the rectum, this causing a secondary pressure.

In the treatment of hemorrhoids also palliative treatment - (1) Open up the entire venous circulation to allow the blood to pass away and free the local pressure - here there is incoordination of venous and arterial circulation - along with this treatment attend to the liver, spleen and the lungs. In lungs chief object is to compel the lungs to oxygenate the blood rapidly. Also treat the large intestines.

(2) If there is history of constipation, go back to the cause of constipation.

(3) Relax the muscles thoroughly in the ilio-sacral region and then relax the abdominal muscles upward.

(4) If it is in a case of internal hemorrhoids use the rectal dilation once a week, continuing for a few seconds. In dilation you should relax for a few seconds.

(5) If pain is associated with the use of dilation give strong inhibitory treatment over sacrum. If there is tenesmus, spasmodic contraction of rectum, here also inhibitory treatment of sacrum is indicated.

(6) In some cases hemorrhoids are caused by subluxation of lumbar and sacral vertebrae, hence, to correct these apply articulatory treatment to the lower dorsal and lumbar regions. Also thorough deep treatment to the muscles right over sacrum. Here we find an enlargement and hypertrophied condition in tumors. Also articulate the vertebrae. Along with this strong treatment by flexing the limbs backward.

(7) If there is loss of tonicity in abdominal walls, manipulate the abdominal muscles and at same time stimulate by articulation in the splanchnic area.

(8) Look out for subluxations and dislocations of the coccyx. In some cases it may be necessary to use the rectal treatment. Introduce palmar surface of fingers backward. They should be introduced above the external sphincter, then place fingers over the surface of coccyx, pulling back against it, using limb as lever to replace coccyx.

(9) Diet. Eliminate all indigestible foods. Advise the free use of water to increase volume of blood and rapidity of blood circulation and stimulate oxygenation. Give very little nitrogenous food.

(10) In case of drugs eliminate by antidote.

(11) In the case of pelvic congestion pay attention as you would to a typical congestion. Open up the abdominal mesenteric circulation through inhibition of splanchnics.

Varicocele and Hematocele - Here we have a venous engorgement and a varicose condition of the veins in the spermatic cord. The venous plexuses are enlarged and engorged with blood. In severe cases all the veins of the spermatic cords are affected. In the female a condition of the same nature is called "hematocele" in which we find the corresponding structures in a similar enlarged and engorged condition. Sometimes it extends to the entire perineum. This is a common cause of uterine prolapse or antifixion or antiversion.

The most marked symptom is a dull aching pain with a dragging sensation downward, dead aching pain at saphenous opening; (1) sometimes a dull heavy aching sensation in the lower limbs. The aching sensation previously follows the blood vessels but secondarily it follows backwards to the spinal cord; the next symptom is the knotted condition of the vessels.

(2) Swelling and engorgement, unless in severe cases disappears on pressure or when the patient is lying down on the back, always increasing in the direct position.

Varicocele is found almost exclusively on the left side on account of the greater length of the spermatic cord on that side and the larger volume of blood which circulates on that side.

Etiology - The predisposing causes are the imperfect action of the valves and insufficient support of the veins on account of the weakening of the muscles and other soft tissues. The anatomical fact which is of great importance is that the left spermatic vein enters the renal vein at right angles instead of an acute angle as it does on the right side, hence the return blood flow on the left side is always less complete and more liable to obstruction than on the right side. Another predisposing cause is the pressure on the left side due to proximity of the sigmoid flexure and possible fecal impaction, especially in cases of chronic constipation.

Pathology - (1) Congestion of blood on venous side caused by predisposing cause; (2) Engorgement of blood in the veins field; (3) Coagulation of blood; (4) Organization of the coagulum - prognosis good, if the stasis has not become a organized condition. Here surgical removal is needed.

Treatment - The lesions that are found are primarily in the kidney area, i. e., from eleventh dorsal to second lumbar, also fourth lumbar regions. The most common lesions that have been found so far are displacements of the left innominate, some involvement of the left hip joint, posterior lesions in the lumbar area, lateral lesions at the twelfth dorsal, first and second lumbar and sacral lesions.

(1) If constipation exists treat the patient for this condition. Use some means of preventing fecal matter to accumulate in the lower intestines. Use high colon tube to reach intestines.

(2) Look particularly to the condition of the lower dorsal and lumbar regions, giving persistent articulating treatment even when there are no specific lesions.

(3) With patient on face give strong inhibitory treatment over the lumbo-sacral region, to get control of dilation.

(4) Have the patient use frequently cold local baths. The Sitz bath is preferable. In connection with the use of the cold bath open up the iliac circulation of the left side, then articulate up from the lower lumbar. If the patient is accessible for treatment this is done by rotation, flexion and thorough extension of the hip and limb. If patient is not accessible for treatment the use of dry heat in connection with the iliac circulation kept up for some time is very beneficial.

(5) Attend to diet of patient along the same line as in hemorrhoids. Eliminate stimulating and irritating elements from the food, i. e., tea, coffee, alcohol, tobacco, etc. Have patient take free exercise. Sitting posture is bad for this condition.

(6) Strong inhibition in lumbo-sacral region downward from lumbar and sacral regions, in order to stimulate the circulation from abdominal field to and towards the pelvis and perineum.

(7) Sunbath is good in all varicose conditions, especially venous stasis.

Varicose Veins. - This is a distended condition of the veins locally and insufficient action of the valves. The venous walls becoming thin from the continued dilation of veins. The venous vessels are elongated and toruous. These parts being subject to great pressure in connection with the circulation of the blood, this produces tendency to and actual rupture of veins.

The most common veins involved are the saphenous, any vein however may be involved in the lower extremities.

Etiology-- The primary cause is the elongation of vein or veins due to - (1) insufficiency of valvular action and (2) impairment of the nutritive condition; (3) insufficient support from veins by laxity of supporting structures. Exciting cause elongation of veins caused most commonly by stasis of some kind. The causes of the opening of the valve orifices with resultant regurgitation of blood is due to this stasis. When the valves do not act properly the blood loses its support against the force of gravity, the regurgitated blood acting - (a) against the blood flow and (b) interrupting the forward movement in the collateral circulation.

As the venous walls become thin and the contiguous structures loose their nutritive support rupture may take place either in the superficial or subcutaneous field. Varicose veins are found almost exclusively in the female sex. This is probably due to the fact that they follow uterine or pelvic changes either at the periodic change of life or in connection with childbearing or uterine tumors and enlargement of some kind.

This varicose condition is commonly caused by something that produces enlargement, obstruction or a constriction of the venous circulation. This hinders the return flow of blood - in some cases partial hip dislocation is the cause, sometimes complete, displacements of the innominate, contraction of the soft tissues around the saphenous opening and also the use of different forms of gaiters, stocking supports, etc. There is a greater tendency to varicose veins in older people, i.e., between forty and fifty years of age. This is on account of the loss of tonicity of muscle and also the venous walls, particularly, in the case of those who have been very active workers when strain of the nervous system has been involved. Early in maturity, degeneration and wasting of vessel walls is found in people who stand a great deal upon their feet.

Symptoms - The first symptom that is generally found is a cramping sensation of the lower limbs, especially on rising after having been sitting for some time. Next there is a feeling of fullness in the lower extremities. This usually begins in the (1) foot or around the thigh, it always has its center at the saphenous opening. The feeling of fullness or weight gives place to a feeling of irritation; (2) sometimes there is the appearance of little papules or eruptions around the regions of venosity when this irritation exists. (3) The physical examination shows the dilation of veins more marked near the saphenous opening, also marked around the ankles; (4) this is followed by cedema, congestion of the foot and ankle with pain, pain being relieved by intense itching. This itching is caused by the venous blood irritating abnormally the superficially nerve terminals.

Treatment - The first point is the relaxation of the muscles and soft tissues in the local field. To relax the muscles rotate and flex freely the limb or the hip joint. Stretch and knead the muscles. In some cases instead of treatment the application of olive oil is used. (2) When there are displacement of the hip joint and pelvis, treat for correction of these. There is usually a partial dislocation. (3) Give thorough treatment to the muscles in the lower part of the spine, beginning above and treating downward and forward, then below and upward. (4) Increase respiration by treatment and raise and expand the chest.

(5) In case of local rupture and hemorrhage apply strong pressure above and below point of rupture with the fingers, then with bandage, then using the compressor if necessary. The elastic bandage may be used. Affected part ought to be massaged every day but kept away from the varicose vein itself.

(6) If varicose vein gets hard olive oil may be used in addition to treatment. Oil should be applied without rubbing and dry heat used over it.

(7) Keep intestines open by proper treatment and limit food of patient in quantity to minimum of substance.

(8) Stimulate right side of heart at second and third dorsal.

(9) Give daily strong circulatory treatment attending particularly to the lower intestinal area and give patient plenty of water to drink.

Dropsy - Here we have (1) osmosis; the (2) infiltration of serous fluid from the blood into and around the tissues and (3) an accumulation of serum in some of the serous cavities of the body; (4) In some cases there is diffusion of the fluid in connection with the tissues.

The most common type of dropsy is the peritoneal type. Next to this is the renal and pericardial. In the peritoneal type (ascitis) there is a distention of the abdominal walls and displacement of the abdominal organs interfering with the circulation, respiration, heart action and uterus action. There are two types of this dropsical condition:

(1) General dropsy, represents an accumulation of the fluid in the tissues under the skin, e.g., in the lower extremities and in lower part of the trunk of the body. Found principally in old people and in case of excessive relaxation of the muscular system.

(2) Local dropsy found in connection with some serous cavity or sac, pericardial, peritoneal, pleural, etc.

Etiology - The chief cause of dropsy is the mechanical obstruction of the portal circulation, cirrhosis of liver, cardiac heart disease, disease of the lungs, especially congestions, emphysematous tuberculosis and tumors, cancer in particular has tendency to cause dropsy at different times in its development. The cancer will be localized in the region.

Partial dropsy is caused by an excessive amount of venous blood found locally together with distention of the veins caused by some mechanical obstruction.

Symptoms - The dropsy that is due to portal obstruction shows itself first - (1) in the abdomen by the distention of the abdominal vessels; (2) followed by difficult breathing;

(3) the tendency to diarrhoea, vomiting and hemorrhoids; (4) then we have an enlargement of the spleen, varicose veins along the sides of the abdomen; (5) in cancer causes excessive gas and water formation.

Pathology - (1) Loss of the physiological control over the circulation of blood or of its isotonicity; (2) over the blood circulation to its physical forces; (3) accumulation of fluid caused by accumulative toxins at point where cancer is found; (4) as the fluid accumulates the peritoneum, pericardium and others become thickened and the fluid inside the abdominal cavity also becomes thicker; (5) at this stage it is frequently accompanied by marked constipation a reaction due to the pressure of the fluid on the sigmoid flexure; (6) another characteristic is the scantiness of the urine and in connection with this stage of dropsy we frequently find periodic attacks of diarrhoea. In this case the diarrhoea ought not to be checked. The dropsical swelling is always soft and elastic - you leave a pit behind when you apply pressure; (7) along with this the skin becomes shiny and glossy and generally dark or purple in color. The discoloration in some cases goes on until the skin becomes entirely black. Localized gangrene may then set in. Tapping of the abdomen causes an undulatory wave to pass over the abdomen, the impulse being transmitted to the finger or hand which does the tapping.

Treatment - The osteopathic theory of dropsy is that it is due to obstruction, i.e., physical reaction to the loss of physiological control and the treatment aims to restore to normal the circulation of blood, especially to coordinate the arterial and venous blood systems.

(1) Primarily this will take place through the heart unless in cases where the peripheral tension or resistance is found to be at fault.

(2) The stimulation of the vasomotor system.

(3) In the average case of dropsy under the osteopathic treatment it is not necessary to attempt to remove the fluid. The only case in which it is advisable to remove the fluid is where respiration and heart action are seriously affected. In this case use the aspirator and use it non-periodically. If you get a case that has been tapped periodically change the period and gradually drop off the tapping until omitted entirely.

(4) The principal organs to be looked after are the kidneys, heart and skin.

Specific treatment - (1) See that all the spinous muscles are relaxed, deep muscles particularly, especially from the ninth dorsal down. This will stimulate the urinary secretions and also the diarrhoea condition. Remember diarrhoea is not to be checked. Deal with constipation to produce a diarrhoea. Use entirely salts.

(2) Give treatment to equalize the circulation and stimulate the arterial blood and at the same time stimulate the lymphatic areas, especially in the lower cervical region right over the anterior transverse processes.

(3) Correct lesions found in the spine and if nonspecific lesions found give good articulatory treatment from ninth dorsal downward.

(4) Apply strong vibration over the abdomen, lungs, kidneys and liver. Follow this by vasomotor treatment and the raising of the clavicles if they are depressed.

(5) The fluid that is found is extremely alkaline indicating the undue alkalinity of the system. Stimulate acid function over the solar plexus and also strong articulation through the cervical and dorsal areas, especially the upper dorsal.

(6) Apply dry heat constantly. If there is solidification apply moist heat.

(7) Do not give patient any more fluid than is necessary. Whatever fluid that is given it should be acidulated. The acid will tend to counteract the alkalinity of the fluid and will also tend to stimulate the elimination of the fluid. Give patient dry nutritious diet.

Respiratory Diseases - Several attempts have been made to classify respiratory diseases. The best classification is twofold;

(1) Diseases that do not interfere with the normal amount of air respired. This includes all diseases of the bronchial tubes except bronchial asthma.

(2) Diseases that do affect the amount of air.

(a) This effect may be an increase in the amount of air, as in cases of enlarged thorax. This may be either on one side or on both sides. The more air there is in the thorax the greater demand there is for air. This is due in a large measure to the physical conditions of pressure within the thorax, all diseases that are dyspnoeic should be classified here except asthma and emphysema;

(b) A diminution in the amount of air. This is found wherever there is an alteration in the thorax or lungs, the change in size interfering with the air space, e.g., in all diseases involving a consolidation or a congestion of the lungs, as in pneumonia or diseases of the lungs. In the latter case there is a diminished amount of air produced by one of two causes - (a) either the inhibition of the thoracic or lung movement; (b) or from a physical condition of pressure of air within the thorax or within the lungs.

Respiratory diseases may originate - (1) from the lungs. The lungs include tubes, vessels and connective tissue in the lung field proper. Any of these parts may be subject to disease but the disease effects principally - (a) the channels for the air; (b) the blood field, and (c) the lymph field. Lung diseases in general are associated with -

(1) Morbid changes. These effect the tubes or the blood vessels, the lining of the tubes or vessels involving the mucous membrane which is subject to congestion or inflammation. The muscle tissue is also subject to changes affecting the elasticity and causing spasmodic conditions of the muscle tissue. In this case there is some type of degeneration. In the blood vessels there is liable to be hyperemia, embolism, thrombosis or cedema. In the lymphatic channels there may be inflammation, especially pleuritic with or without transudation as a hydro or hemothorax. The common symptoms in all these are pain, irritation, cough, or some form of discharge, expectoration, hemorrhage, etc.

(2) The changes may be obstructive in their nature. Here the mechanical symptoms are two-fold - (a) dyspnoea, interference from the physiological side produced by obstruction of the bronchial tubes or the blood vessels as in asthma, capillary bronchitis, stasis, embolism, etc. (b) Cyanosis, interference from physical side. This is always developed by some physical interruption or irritation. This irritation represents an interference with the interchange between the blood and the air and is dependent on muscle and nerve action. The muscle action represents inspiration and the expiratory muscles; and the nerve action the controlling action of the nerve apparatus. Any interference with this apparatus or any inactivity of the muscle produces paralysis, pain and this results in a change of the movements of the muscles giving origin to dyspnoea.

(3) Any obstruction by lesions or otherwise of the nerves may interfere with the muscle action involving particularly the respiratory muscles or the muscular structure in the bronchial walls. This produces cough and bronchial spasm. The interruptions or obstructions may be three-fold: (a) interference by pressure with same nerve, e.g., in aneurism, muscle or bone displacements affecting the tenth cranial nerve or the spinal nerves; (b) Central interference caused by the accumulation of urea, uric acid, etc., of the action of some of the higher centers upon the automatic centers of respiration, as spasmodic hysterical cough; (c) Interference reflexly with the tenth cranial nerve in some other organ, e.g., stomach or liver causing cough.

(4) Diseases of the pleura often affect the respiratory apparatus. This effect may be on one or both sides. In either case we get primarily an inflammation and this may be with or without exudation. In both cases there is an interference with lung or thorax action or both and therefore diminished amount of air reaches the lungs. In acute cases there is an inhibition of movement due to pain, causing lessened expansion of the thorax and lungs. In case of exudation the amount of air is lessened by the effusion.

(5) Respiratory changes are sometimes due to blood changes either in the heart or in some other part of the circulatory system. Heart and lungs are closely related through the pulmonary system so that the lungs are subject to all of the heart changes. In addition to this the equilibrium of the systemic and pulmonary circulation is so delicately arranged that any change in the systemic circulation reacts upon and materially affects the lungs chiefly because the lung circuit is so short leaving little room for compensatory action.

(6) Different processes of the body depend so much on the supply of oxygen furnished by the lungs that any condition of imperfect nutrition anywhere interferes with lung activity causing some form of lung disease. This establishes a close relation between the lungs and the blood system and all the organs of the body make the lungs specially liable to be the case in all the infectious and toxic diseases.

Symptoms - (1) Subjective. The most important is dyspnoea. In this case may be deeper and more frequent. In some lung diseases there is no dyspnoea because the change is gradual, the lung becoming accommodative to the change. The dyspnoea is generally produced by something that cuts off or lessens the normal amount of air. It also results from a diminution of air space in the lungs as in consolidation, pleural effusion, spasm of the muscles in the air passages. Anything that causes the thorax to alter its shape or size or interferes with the muscle action may produce dyspnoea.

The next symptom is cough representing the reflex action consisting of deep inspiration followed by closure of the glottis and a sudden expiration of air being quickly thrown out with vibratile changes. Usually produced by irritation of the mucous membrane of air passages, sometimes produced by pressure of foreign bodies in the meatus of the ear, sometimes by irritation of a tooth stump, irritation of the stomach or liver. The principal point is to distinguish between a dry and a moist cough. The dry is found where the source of the irritation cannot be removed as in the cough of phthisis. Here there is a lack of movement of the lungs. Moist cough is found where there is a momentary or temporary irritation which can be removed when expiration takes place.

The next symptom is hemorrhage. Hemorrhage of the lungs takes place on account of the rupture, disease or weakening of the vessels in the air passages.

The next symptom is pain. This is found in pleuritic disease and in bronchitis with a rough cough and a dull soreness just behind the sternum. In pleurisy the pain is found before exudation and is a severe cutting pain or a sharp pain starting around thorax.

(2) Objective symptoms. This depends on physical examination which gives us two things - (a) physical condition of the lungs and thorax; (b) conditions of the activity found in connection with respiratory action whether modified or not. For physical examination the thorax is divided into Anterior thorax.

(a) the supraclavicular; (b) infraclavicular area to the third rib; (c) the mammary area from the third to sixth rib; (d) below the sixth rib. The posterior thorax is divided into (a) supra-scapular in pneumonic conditions; (b) scapular in pleurisy; (c) infra-scapular in bronchitis, and (d) inter-scapular areas in pneumonia. The lateral aspect of the thorax is divided into the upper and lower axillary areas.

Presternal line midway between edge of sternum and the middle clavicular line. The midclavicular from middle of clavicle through the nipple. Anterior axillary line from anterior axillary fold, midaxillary from the middle of the axilla, posterior axillary from the posterior folding. Posterior lines follow the divisions of the scapula, representing the superior and inferior points.

Transverse lines are marked by the interspaces between the ribs, the costal angle and the angle of the ribs. Epigastric angle formed by convergence of the ribs on both sides of the xyphoid cartilages of sternum. Normally it should be on the same plane with the lower border of the second dorsal vertebrae.

Junction of first and second parts of sternum is opposite middle of the second rib and this is of special value in pleuritic conditions. Junction of body on sternum with xyphoid cartilage is on same plane with lower border of eighth dorsal vertebrae. Weakest point in thoracic wall representing where effusion usually comes to a point is at the fifth interspace just below the nipple. Apex of lungs extends one to two inches above clavicle anterior, posteriorly on line with spinous process of seventh cervical vertebrae. The lower anterior margin of the right lung begins at the junction of the sixth rib with the sternum, descending to the upper margin of the seventh, going down posteriorly to the tenth. On the left side we find the same margin except at the cardiac triangle.

Lesions that are found in cases of Bronchitis - Bronchial diseases are not so severe as pulmonary and are generally not so fatal, except in complications. In recognizing bronchial diseases - (1) Most bronchial diseases are bilateral, excluding obstruction due to foreign bodies; (2) The bases of the lungs posterior are most commonly affected; (3) In bronchial diseases there is hardly ever dullness; (4) There is always present some rale.

Bronchitis is an acute inflammation of the bronchial tubes. May affect larynx, trachea, or capillary tubes secondarily. Any part of the bronchial tree may be affected. It is generally primary but in some cases secondary to heart and kidney diseases. The acute form is found chiefly as an extension of catarrhal inflammation of the throat or nose in common cold. In some cases it is primary in the tubes. Found chiefly in the winter or spring season following cold, coryza, laryngitis, the inflammation moving downward. If the large or medium sized tubes are affected there is always a sore and raw feeling in the upper part of the thorax beneath the sternum. Sometimes a thickening sensation in the throat and a feeling of heaviness in the chest both due to that lack of coordination between chest movement and bronchial movement. The chest pain is myalgic, due to pressure, irritation or strain of the muscles the result of coughing, or limited respiration.

Lesions are contracted muscles in the upper dorsal area on both sides, contracture sometimes extending to lower dorsal and through the clavicular regions. (2) Ribs may be drawn downward posteriorly by severe muscle contraction causing strong contraction in the upper anterior thorax preventing normal thoracic movement; (3) In some cases the ribs and dorsal vertebrae are displaced together, secondary to muscle contraction the ribs and vertebrae involved are the second to sixth, representing the vasomotor nerve supply to the bronchi.

Symptoms - (1) First hard and dry cough with pain in thoracic and abdominal muscles caused by contracture of same. Usually it is worse when the patient lies down and rises up. (2) Slight febrile temperature and increased respiration. One attack usually predisposes another, except in children. They grow out of the condition. In children and old people the smaller bronchi are involved, in middle-aged people the larger.

Pathology - The mucous lining of the the trachea and bronchi are congested and red, becoming rough with mucous accumulation. Sometimes little nodules are found on the mucous membrane. Hyperemia is most tense around the glands. In some cases the small bronchi are distended, the cilia of the epithelial lining desquamates and in most cases there is swelling of the submucous membrane. In severe cases there is leucocytic infiltration.

History of Symptoms - It usually begins with a (a) cold, accompanied by hard cough without expectoration; (2) It then becomes moist with white mucous and later pus cells and broken-down epithelium; (3) When the bronchitis is fully established there is a feeling of tightness, rawness and weight around the upper sternum. In cases without complication the lung substance is not changed or affected the case lasting from two to four days and sometimes several weeks. The case may recover or become chronic or the complication may arise ending fatally; (4) the frequency of respiration is increased if the tubes are swollen and bronchial fremitus is felt. If the tubes are constricted the percussion note is unaltered but there is a respiratory murmur. In the early stage there are hard rales, in the later stage they become soft and mucous; (5) Not difficult to diagnose the case where there is febrile temperature, cough, expectoration, a rough respiratory murmur and a bronchial rale on both sides.

A severe type of acute bronchitis is the capillary type, limited to the small tubes, found in small children and old people, representing congestion of small capillaries of bronchial tubes. It can usually be diagnosed by the suffocating condition, difficulty in expectorating. In this case the bronchial inflammation moves down to the very small tubes, in some cases it begins in these tubes.

It comes on with a series of chills with high febrile temperature. In the very acute type the skin is dry and hot, face flushed, beading perspiration on the head and neck, very rapid pulse, temperature 102. Usually a marked symptom is the drawn condition of the face with difficult breathing, sometimes amounting to snorting. This produces dyspnoea with very rapid respiration, generally paroxysmal, the difficulty being entirely in expiration. Difficult breathing is accompanied by cough, the violent effort to expectorate, very marked cyanosis, e.g., blue lips, face and finger-nails, cold hands and feet, symptoms of vaso-motor paralysis. If expectoration is unsuccessful in the child convulsions and coma follow. In old people coma alone. In favorable cases expectoration is free with marked rales, moist in its nature, heard at the base of the lung posterior.

Treatment - Here we are dealing with a blood condition - congestion or hyperemia in respiratory field. The blood supply to the respiratory apparatus is large and complicated. This makes any congestion easy to produce, a difficult condition to deal with. The nerve supply is from anterior and posterior plexuses, from tenth cranial and sympathetic nerves. These two nerves are regulative in their action and are affected chiefly by pressure or overstimulation either in the neck or spine.

One important point in all respiratory diseases is pressure at the fifth dorsal and corresponding fifth rib which causes cough. It also has a direct effect on the heart as this is the center of cardiac rhythms and superficial circulation.

Tenderness or contraction of muscles should always be relieved first, the contracted muscle obstructing the circulation, producing congestion and pressing from blood side on the nerves that control the lungs and bronchi, producing paroxysmal spasms. Frequently in early stages of bronchitis relieving the condition at the fifth dorsal and relaxing the muscles from the fourth cervical to tenth dorsal will be sufficient to cure the disease.

In treating all respiratory diseases we must aim - (1) at thoracic expansion, it is both vertical and horizontal; (2) freeing the local blood supply, this has to be largely done through the heart; (3) freeing and equilibrating the nerve force, tenth cranial and sympathetic.

The first point is secured by the free use of the arms, the second by vibration and manipulation of the thoracic muscles both anteriorly and posteriorly, by treatment to the third and fourth dorsal on right side of heart rhythms and force, also by pressure in the vasomotor area in the upper cervical region.

Hyperemic condition of the bronchial tubes is due to vasomotor disturbance. This is generally produced by strong contraction of the muscles from first to seventh dorsal. This is aided by the strong contraction of the anterior thoracic muscles which are often in a state of rigidity due to cold. In most cases contraction of these muscles is so severe as to cause subluxation of ribs and vertebrae on account of the tension and pressure of the muscles. This produces a tendency to bronchitis and also the chronic state, the ribs and vertebrae continuing displaced and keeping up continual irritation. Therefore in the treatment of acute bronchitis - (1) to relieve muscle contraction; (2) see that the ribs and vertebrae are corrected if subluxations are found.

Specific Treatment - (1) With patient on stool place knee between scapulae, raise arms above head as high as possible causing patient to breathe freely; then draw arms down and backward pressing strongly with knee between scapulae. Do this four or five times to free the circulation to lungs, bronchi and to relax the muscles.

(2) With patient on back meet fingers behind neck pressing firmly on vasomotor area, pulling neck upward and letting head fall back.

(3) Give careful rotation of the head and neck followed by extension of the neck, pressing tightly behind the mastoid process while the patient opens the mouth. Then vibrate and press lightly on the forehead above the eyes, along the side of the nose, freely manipulating the muscles of the neck with patient breathing freely so as to free the blood supply and the tenth cranial nerve to lungs, bronchi and then manipulate the anterior muscles of the neck and move the trachea upward.

(4) Vasomotor treatment in neck, pressing tightly while patient inhales. Do this for three minutes to reduce temperature and produce equilibrium of arterial and venous blood.

(5) Relax muscles in back thoroughly downward, articulating vertebrae from first to seventh dorsal and manipulate anterior muscles of the thorax.

(6) Raise and spread the ribs beginning low down at ninth rib, using arms as leverage. This will free the possible hyperemia of the bronchi by freeing the blood in the upper intercostal and azygos major veins, also freeing the nerve supply to the anterior and posterior pulmonary plexus.

(7) Vibrate over the upper and anterior thorax while patient is breathing deeply.

(8) In the acute case make the patient go to bed and keep warm with an even temperature. Give the patient daily a warm foot bath or sitz bath to stimulate the circulation.

In capillary bronchitis treat the same as in the acute to relieve the nerves and muscles by relieving the contracted muscles of the neck and the upper thorax, both anterior and posterior. Muscular interference produces capillary stasis and interferes with the lymph circulation. Give little fluid till static condition of fluid is relieved, then can give more. Give concentrated food possibly predigested. In addition to treatment given above --

(9) Raise the clavicles. Stimulate lymphatic and venous circulations by loosening up all the structures around and under the clavicles.

(10) Vibrate over the upper sternum and over the jugular veins to make as easy as possible the blood return to the heart.

(11) Place patient on back. With one hand under the body pressing upward against the spine, raise the arm above the head giving the arm a light vibratory movement. Continue this treatment down to the eighth dorsal to relieve the intercostal tension, to expand the chest, the lungs, and bronchioles.

(12) Give the patient general treatment in the vasomotor area of the spine to relieve contraction that produces pressure on the capillaries all over the body.

Chronic Bronchitis - This is a chronic inflammation of the mucous membranes of the large and medium sized tubes found chiefly in middle and later life. Sometimes it is secondary resulting from cold, exposure, breathing irritating odors or particles of dust. Most commonly it is secondary to acute bronchitis or chronic heart, lung and kidney diseases. Secondary to heart conditions, toxic conditions or a primary congestive condition in any part of the body, or to any disease that obstructs the circulation, e.g., Bright's disease, chronic alcoholism. Also found in chronic rib and vertebrae displacements resulting from acute bronchitis. Sometimes it alternates and as a reaction with gouty, tubercular and rheumatic conditions of the toxic type. Found chiefly in the winter season. Worse in excessive damp cold climates.

Pathology. - All the pathology of the acute type precedes. There are two types - (1) The mucous membranes becomes thin exposing the longitudinal elastic fibers, epithelium being almost absent. The muscular coats and the glands atrophy. (2) The mucous membrane is thickened by granular infiltration and this sometimes results in ulceration.

Symptoms - The condition is gradual and one of long standing. No febrile symptoms, very little of any health impairment. Cough irregular, especially if the patient is emphysematous, cough is hard, harsh, dry or moist. Most cases last during the entire winter disappearing in good weather. Cough in most cases is paroxysmal. In severe cases there is abundant expectoration of mucous and mucopurulent substance. Dyspnoea is not marked unless there is emphysema. As the case grows older the condition becomes worse. In the dry catarrhal type there are severe paroxysms of cough on the slightest irritation.

Physical Signs - (1) Moderate dyspnoea, increased emphysema; (2) the feeling of tightness around the chest and soreness around the sternum; (3) chest is usually distended, interfering with lung and thoracic movement. In onset the cough is more paroxysmal; (4) Percussion note is clear, sometimes hyperresonant if there is emphysema and develop with emphysema. Respiration is harsh and in old people much prolonged and high in pitch with signs of dilatation as in snorting breathing, long expiration, wheezing, moist rales; (5) There are three different types of respiratory murmurs, first bronchitic with excessive secretion from the bronchial glands, either limpid or mucous; second fetid or putrid, represented by sloughing of the glands. Sometimes accompanying dilatation of the tubes chronic pneumonia, phthisis and pyemia. Here there is always febrile temperature, sometimes chills. To be distinguished from gangrene of the lungs by absence of disintegration, the absence of lung substance and the sputum. Third the plastic or fibrinous. Some claim it is acute, but it is always a chronic condition. The bronchi are affected to the extent of stopping the bronchial movements. Fibrinous matter accumulates in the bronchi thrown off as a fibrinous mold, sometimes associated with hemorrhage. This mold when placed under water consists of solid casts, the shape of the bronchial tube and branches, sometimes called a cast. It is found in people of middle life or those who are greatly weakened, almost exclusively in males, accompanying or following chronic lung conditions, emphysema, pleurisy. It usually sets in with high fever, then the fever remits followed by soreness around the sternum, the paroxysmal cough, marked dyspnoea and hemorrhage in some cases, sometimes death resulting from suffocation. In the fibrinous type we find lesions in the vasomotor area - upper D and upper C.

Treatment - Treatment here is much the same as in the acute type, except that here more attention is paid to the osseous lesions. Do not treat chronic case as often as in the acute.

(1) General treatment to relieve obstruction and venous stasis. Manipulate throat and upper part of chest carefully. Also vibrate the muscles to loosen the muscles and prepare the nerves for later treatment. The nerves are distributed along the bronchioles and they are practically in a state of semiparalysis due to pressure caused by muscular and venous conditions.

(2) Hence relax the muscles in the lower anterior part of the neck, raise the clavicles and vibrate over the jugular veins and apply pressure over the phrenic nerves.

(3) Following this stimulate the diaphragm movement by pulling it up and out laterally, the object being to relieve the diaphragm

at the upper part and stimulate the lower part so as to prevent absolute fixation. Follow this by treatment of the thoracic m's using the arm as lever, with one hand under the back moving the arms above the head. Place the hand between the scapulae pushing up and then let drop down while the patient is breathing.

(4) Look for lesions of ribs and vertebrae from first to seventh dorsal, especially lateral lesions in vertebrae. correction of these lesions relieves the inflammatory condition of the bronchial tubes.

(5) In case of dilatation of the bronchial tubes there is obstruction to the motor nerves and this is corrected by articulating the first five dorsal vertebrae. Articulate with patient on face or side, pulling on spinous process of one vertebrae and pushing down on the next. This relieves the anterior roots of the epinal nerves. At same time stimulate the tenth cranial nerve by slight rotation of the head and atlas and light pressure along the carotid sheath, the tenth nerve supplying the motor fibers to the transverse muscles of the bronchial tubes.

(6) See that the digestive system, the glands, of stomach, the hypersecretion of the kidneys and liver are kept active. The best way to do this is to begin with the superficial circulation and give light treatment to the organs - hyperacidity of stomach often gives a chronic bronchial cough.

(7) Sometimes the lesion is found between the manubrium and the gladiolus, the upper part of the sternum becoming locked beneath the middle part. In some cases there is marked bulging at the articulation at the upper and middle parts of the sternum produced by the projection of the anterior portions of both producing pressure on the nerve supply to the bronchi and hindering free thoracic play. Correct this by - (a) by attempting to lower slightly the second rib; (b) lying the flat of the hand on the sternum at its upper part, apply strong pressure and pull up the arms at an obtuse angle of the body.

(8) Attend to stimulation rhythmically the rhythmic action of the muscles of inspiration and expiration and the thoracic movements.

(9) Diet and Hygiene - Give patient good nutritious food, eliminating all stimulating elements to keep down stimulation of the larynx and oesophagus. Give easily digestible food only; have the patient wear warm clothing and take a tepid bath at least once a week, gradually changing it to cold bath. Have patient take as much open air as possible.

Fibrinous or Plastic Type - Here we have the destructive vaso-motor type of chronic bronchitis, either direct or reflex cause, producing capillary congestion at a particular point in the bronchial system and at a particular stage of bronchitis. Result is a serofibrinous exudation at a point causing deposits. The primary disturbance is dilatation, the inhibition of constriction in relation to the vasomotor function in bronchioles produced by (a) severe subluxation of the upper ribs and the upper dorsal vertebrae; (b) by intense contraction of the muscles in the upper cervical and dorsal areas. Vasomotor area is first affected resulting in capillary incoordination, net result of capillary incoordination is dilation.

Treatment - Inhibition. Press lightly on the vasomotor region in the upper cervical from three to seven minutes. This will assist in regulating heart action, arterial and capillary coordination. Apply the pressure by holding for a few seconds, then let go and so on.

(2) Give special treatment to the large veins and the lymphatics in the neck and in the upper thorax. In doing this (a) raise the arm above the head, pulling slightly upward, (b) follow by a moving pressure treatment over the field of the neck; (c) push the fingers underneath the sternal end of the clavicle on both sides, elevating the clavicle from the sternal articulation points; (d) give moving pressure to the first two ribs at their articulations.

(3) Apply vibration and manipulation to the glands and muscles in the front and along the sides of the neck, especially along the carotid and jugular sheath, catch the tenth and phrenic nerves.

(4) Give direct treatment to the inferior laryngeal nerve at the inner side of the lower part of the sterno-cleido mastoid muscle.

(5) Hacking treatment over center of clavicle will stimulate lymphatics.

(6) Pull up the trachea, throwing the head slightly back, shaking the trachea. Follow this by opening the mouth and pulling out the tongue, manipulating the mucous membrane of the mouth. Close the mouth and inhibit lightly at the articulation of the lower jaw.

(7) Diet and hygiene the same as in chronic bronchitis. In this case limit the amount of fluid. Give as dry a diet as possible and limit the amount of exercise.

Bronchial Asthma - This is a chronic disease caused by spasmodic constriction of the bronchial tubes, chronic inflammation of the bronchi and lesions of the upper three ribs. It is (1) paroxysmal in nature, paroxysms of dyspnoea being caused by spasmodic contraction of the bronchial muscular coats. (2) In connection with these there is lessened respiratory movement of the thorax, (3) prolongation of expiration and sibilant rales, such as found in bronchitis. (4) In some cases mucous expectoration caused by swollen condition of the mucous membrane.

Etiology - This is one of the diseases in which osteopathy has been most successful because it is due to mechanical obstruction. The lesions found affect the bronchial tubes including the trachea, second to seventh dorsal and corresponding ribs, anterior and posterior regions. These lesions interfere with and irritate the vasomotor nerve supply to the bronchial vessels and also the intercostal nerves affecting the muscles of respiration. There are two conditions to be dealt with - (a) the constriction of the bronchial tubes, both motor and vasomotor, and (b) interference with or irritation of the respiratory muscles. The second to fifth ribs are most commonly involved on the right side. The muscles in this case are more fully developed and the interference with muscular action causes disturbance in rib articulation. Also we find lesions of the atlas and axis involving the tenth cranial nerve, interfering with the fibers of the bronchial muscles

producing constriction of the tubes and reflex paroxysms. The paroxysms are caused by neurosis of the vaso-motors at third to fifth dorsals. This neurosis causes an interference to the blood supply congestion resulting in inflammation of the tubes with thickening and swelling of the mucous membrane. In some cases chronic bronchitis and emphysema may be the exciting cause.

Symptoms - The attack may be limited to a single paroxysm or to several paroxysms in a single night or it may be prolonged several days, the attack taking place during the night with remission during the day. (1) In the onset premonitory symptoms found in most cases are headache, neuralgia, vertigo, drowsiness, followed by nervous irritability, the paroxysmal attacks usually come with periodicity, most commonly during the night; (2) the onset is sudden with tightness in the chest and oppression of the respiratory movements resulting in dyspnoea that becomes extreme at the climax of the paroxysm, face becoming pale, lips dark and profuse respiration with a feeling of suffocation. Patient usually attempts to overcome paroxysm by trying to get to the open air or supporting the body with the hands to try and relieve the muscular spasm. (3) There is great respiratory effort with very slight thoracic movement. The cause of this is the lungs are fully distended, bronchial tubes constricted so that the patient cannot expire on account of the spasm of the bronchial tubes resulting in prolonged expiration, depresses nervous system and nervous system struggles to free itself. To palliate do not attempt to check or stop paroxysm but control from symptomatic side, by inhibition over superior cervical ganglia. (4) Respiration is more frequent but this is limited to the upper respiratory system. The change is rhythmic, inspiration short and gasping with prolonged expiration, an increased amount of air in the thorax causing a weight which acts by gravity in preventing expiration; (5) thorax enlarged giving a bottle shaped appearance, movement of the thorax is inhibited by strong muscular exertion causing exhaustion. The diaphragm is lowered frequently causing epigastric fullness and oppression; (6) Temperature normal or subnormal, reaction from excitability of the nervous system; (7) the attack usually subsides suddenly with a spasm of cough sometimes and expectoration, especially in severe cases. At first the cough is hard, then accompanied with scanty expectoration, later soft with profuse expectoration, sputum containing mucous spirals consisting of mucous cells, fat cells and mucin.

Physical Signs - (1) Thorax enlarged, with (2) fixation of the chest and labored breathing; (3) percussion note is hyperresonant. The sounds of auscultation indicates short or long expiration with sibilant rales, as the secretion increases the rales become moist.

History - The attack may last from one hour to two days with slight remission. In chronic cases paroxysms may last for one week, the attack subsiding either with cough and expectoration.

Prognosis - If bronchial asthma comes earlier in life it is more apt to be favorable because of the power of resistance possessed by the bronchial tubes and lungs and the ability to accommodate themselves to asthmatic conditions. Is more common in male sex and in cases of heredity, probably because of the natural peculiarity in the thoracic wall and the thoracic tubes.

Treatment - (1) Where it is result of complication of bronchitis treat it accordingly; (2) if it is not complicated with bronchitis or lung trouble it is to be treated - (a) to relieve the paroxysm, i.e., palliative. This is relieved by relaxing the muscles in the regions where the lesions are found also by attempting to move the ribs. The object is to relieve the pressure and remove the irritation from displaced structure and free the motor and vasomotor nerves. To check or control the paroxysm apply strong inhibition to the muscles along the spine in the upper dorsal region and over superior cervical ganglia. In severe cases the paroxysm can best be controlled by rectal dilation. Between paroxysm in the asthmatic patients try to locate contracted or displaced muscles and osseous lesions.

(1) In treating the patient look to the thoracic movements, both anterior and posterior and to the nerves which control their action.

(2) Also to the tenth nerve that controls the muscular coat in the bronchial tubes.

(3) Attend to all the muscles in the thorax because frequently asthmatic spasm is due to incoordination in muscular action. This is one reason why inhalation is generally free while exhalation is generally obstructed.

(4) Spasm may be due to some direct interference by pressure with the nerve supply to respiration or to reflex condition of the stomach, liver, etc. This indicates that the primary seat of the disease is in the nervous system so far as spasm is concerned, i.e., neurosis, and almost always from the sympathetic system. Treat the patient twice a week until you get control of the m's and the nerves and then once a week after.

Specific Treatment of Bronchial Asthma - (1) Begin at the occiput and the upper cervical, thoroughly relaxing the muscles by strong inhibition, extension and rotation of the head and neck.

(2) With patient on back stand at the head of patient, this required two persons, one puts the right and the other the left hand at angle of second rib, taking arm of patient with other hand and raising it slowly above the head, applying steady pressure at the angle of the ribs, slowly lowering the arm down to normal. Move the fingers at the angles of second to fifth ribs, giving a similar treatment. The object is to raise the ribs and stretch the intercostal muscles.

(3) Put patient on stool; give the knee intercapular treatment raising the two arms at the same time over the head. Make the patient breathe deeply, inhaling while raising the arm, and exhaling while lowering backward.

(4) Make patient sit on table. Put arms around thorax to the posterior thorax, pressing firmly on the upper ribs, pulling upward and forward, holding the ribs in posterior while the patient inhales and exhales. Look particularly at the fifth rib which is frequently twisted or slightly subluxated. If it is twisted place the finger on the projecting part and press the anterior thorax against your own chest, throwing the body of the patient towards the same side and then quickly pulling it to the opposite side.

(5) With patient on back with fingers of one hand press at angles of ribs posteriorly, with other pressing outward and downward on cartilages at sternal end of same rib, while some one else is pulling arm on same side above head. Continue this from area of affected ribs, making patient inhale and exhale freely.

(6) Vibrate over whole thorax, especially over lung field to assist in stimulating circulation and removing stasis. Use vibration over ribs at articulation with vertebrae.

(7) Raise clavicles and press body backward by pressure upward at either side of the spinous processes. Relieve pressure of intercostal nerves and the spinal circulation. Give hacking treatment over clavicles.

(8) Look out for some specific irritation if there is any in this case.

(9) Diet. Give nutritious and easily digested food, and see that the gastric apparatus are kept in regular action, irritating the intestines if necessary.

Bronchial Obstruction. - May be produced by internal or external conditions, as compression from tumor, enlarged glands, cysts, mediastinal abscess, goitre, pleural effusion, etc. May also be produced by constriction-swelling of the mucous membrane, followed by growths in the lining membrane. Sometimes it is produced by cicatrization, as in syphilis, tuberculosis and nodules of tuberculosis and leprosy.

Symptoms - (1) Obstructive. These depend on the size of the tubes and (2) effusion, the amount of effusion. If there is small area affected there may be no perceptible symptoms. If a large area is affected the percussion note continues resonant, but its limits, unless influenced by inspiration and expiration than normally. Usually there is a weakening of respiration sounds, vocal and phantom rales found over the seat of effusion. Dyspnoea is also found corresponding with the amount of occlusion.

Bronchiectasia - Here there is partial or complete dilation of the bronchial tubes, generally secondary to the condition that tends to weaken the walls of the tubes and diminish elasticity, hence it is found following or secondary to chronic bronchitis, emphysema, chronic phthisis, catarrhal pneumonia, conditions of external pressure, presence of foreign bodies, also in fibroid pneumonia, also pleural thickening.

There are two types - (1) Simple, where there is a simple dilation of the affected tubes - losing elasticity; (2) Sacculated, where sacs or pouches are formed in the tubes. More common in male than female, found in adult life usually unilateral. Begins in inflammation which weakens the bronchial tubes or walls and prevents them from persisting the strain put upon them especially in paroxysmal coughing. Dilation is usually compensatory, as soon as it begins weight of the accumulated secretion produces more dilation, weakening the walls, lessening elasticity until it is impaired and lost.

Osteopathic lesions are found similar to chronic bronchitis, especially in the four dorsal vertebrae and corresponding ribs, causing obstruction to the nerves supplying the bronchial tubes.

Pathology - (1) Back of bronchial obstruction we have the pathology of bronchitis either of obstructive or effusive type. There are two forms - (a) simple, with thinning of the walls; (b) sacculated, with the thickening of the walls. Both are found in some cases at the same time. The condition may be general or partial. If general, it involves the whole bronchial apparatus, compressing the bronchial tubes into a mass of fat opening into one another with smooth and shining walls, except when suppuration and ulceration exists. In extreme forms this saccular dilation results in the formation of cysts - mucilaginous development per albumen. Generally the lung tissue surrounding the bronchi are affected with cirrhosis. If partial, which is most common, the bronchial mucous membrane is affected causing a narrowing of the bore of the vessel, the tubes becoming cylindrical. The chief change is in the bronchial walls, cylindrical epithelium being replaced by pavement epithelium, the elastic muscular layers atrophy and in some cases the fibres are thrown off. Dilation frequently continues until there is a throwing off of most of the mucous lining.

Symptoms - These are cough, worse in the morning, suppuration, dyspnoea and emaciation. Cough is paroxysmal due to the filling of the tubes. This is followed by free expectoration, brownish-gray in color sometimes muco-purulent. In the sputum are found mucous and pus cells and casts and crystals of salts, fat cells, bacteria, elastic fibers. If ulceration and disintegration exists dyspnoea is slight, except where dilation is complicated or heart or lung diseases or acute bronchitis. Emaciation is gradual, depending on the extent of dilation, the paroxysmal nature of cough, and the extent of the expectoration.

Physical Signs - In the simple type there is nothing excepting increased bronchial respiration with metallic rales. Percussion notes varies according to changes in the lungs, being less resonant and higher in pitch. In the sacculated the note is tympanitic if the sac is empty and dull if full. Auscultation gives us bronchial breathing and rales. The sounds are cavity sounds, vocal resonance and fremitus being increased. The only way to differentiate this from bronchitis is to follow the physical signs and note that their persistence without changes.

Treatment - The condition is produced by contraction, swelling in the mucous membrane of the bronchi and sometimes as reflex from other condition. In dealing with this:-

(1) See that the vasomotor system to the bronchi is free looking particularly to the upper dorsal area.

(2) See that the tenth nerve is free, particularly at the atlas and axis.

(3) Relieve the clavicles and stimulate by pulling up the trachea.

(4) Look to cause producing the condition, as tumor, goiter, etc.

In Branchiectasis - the treatment is the same as in chronic bronchitis with the following special points: (1) Look to the condition of third to sixth dorsal vertebrae and corresponding ribs.

(2) Look to any points where the tenth nerve may be involved, especially fourth and fifth dorsal on left side.

(3) Give treatment to reach deep tissues along spine as lesions are liable to be deeper as those of chronic bronchitis and there is more likely to be extensive osseous conditions. These deep lesions involve the motor and vasomotor nerves to the muscular coat of the bronchial tubes.

(4) To assist in checking dilation pull up the trachea, stretch it upward and cause rhythmic movement downward. Treat every other day and in severe cases every day.

(5) Where secular bronchiectasis exists stimulate lung activity (a) by strong vibration, (b) by strong pressure from anterior to posterior and (c) stimulate the lung centers in the fourth and fifth dorsals rhythmically. Keep the lung active and cause it to absorb.

(6) To reach bronchial tubes shake the trachea just above the sternum.

Broncho-Pulmonary Hemorrhage - Here there is expectoration of pure blood in color the same as arterial blood. Found in connection with coughing resulting from tubercular conditions or secondary deposits in the walls of the minute bronchial arteries. Sometimes secondary to pulmonary congestion, excessive heart action, bronchial congestion, excessive muscular activity, hemophilia, gangrene of the lung, ulceration of larynx and fibrinous bronchitis. Lesions are found between second and seventh dorsals and corresponding ribs. These lesions cause neurosis of the vasomotors and interfere with the nerve and blood supply to the bronchial tubes or the lungs causing hemorrhage directly. In other cases heart diseases, aneurism of the pulmonary artery cause pressure resulting in stasis and hemorrhage. In some rare cases it is produced by menstrual derangement causing vicarious hemorrhage. In many cases no lesions are found, the lesion itself being microscopic in connection with the arterial wall. In other cases the larger vessels become ruptures or eroded. In these cases the primary disturbance is atrophic, the blood accumulating or coagulating in the air vesicles, the mucous lining of the bronchial tube being swollen and dark colored.

History - Condition comes on suddenly, in rare cases it is preceded by epistaxis, in other cases by cardiac palpitation and difficult breathing. (1) The first perceptible change is the sensation of warmth felt in the throat and beneath the sternum; (2) followed by the tickling sensation at the lower larynx and the sweetish taste in the mouth. This is followed by hemorrhage; (3) Patient then becomes faint and there is slight febrile reaction with thoracic pains; (4) these soon pass away unless a secondary inflammation develops, temperature and localized congestion; (5) The only physical signs are rough bubbling rales due to fluid heard over the bronchial tubes. Hemothorax is differentiated from epistaxis only by examination of nares and fossae and the absence in epistaxis of bubbling sounds. Differentiated from hemorrhage of stomach by the fact that in the latter case there is vomiting of blood instead of expectoration and its mixture with the stomach contents. In some cases hemorrhage passes into oesophagus and is then vomited. Here it is difficult to differentiate, the only point being the presence of epigastric pains and the absence of the frothing of the blood.

Treatment - (1) Correct whatever lesions found.

(2) Treatment of the vasomotor system.

(3) Palliative treatment at time of hemorrhage - (a) Strong inhibitory treatment in the upper cervical region, directing pressure downward. (b) Strong inhibitory treatment in the upper dorsal region. (c) Strong inhibitory treatment in the lower splanchnic region.

(4) Stimulation of the venous blood circulation all over the body - (a) heart treatment from free side; (b) warmth to the extremities and abdomen; (c) warm drinks - salt.

(5) There is tendency of the condition to pass towards the brain. Reaction from pulmonary to cerebral and nasal circulation. This causes epistaxis and fainting.

(a) Inhibit over superior cervical ganglia, lateral.

(b) Inhibit seventh cervical, transverse process.

(c) Articulation of vertebrae from axis to fourth dorsal.

Congestion of the Lungs - This is the first disease of the lungs. Here there is diminution in amount of air and abnormal fullness of air vesicles and capillaries. Seat of congestion is in the capillaries, the reaction from the capillary condition being the diminution in the amount of air. There are two types of congestion - (1) Active type produced by rapid acceleration of the circulation as a result of the vaso-dilation and catarrhal condition; (2) Passive type, result of obstructed or impeded circulation, here the veins are involved?

Etiology - Active type caused by excessive abnormal heart action, overexertion, mental excitement, sudden inhalation of hot or cold air. Here we have a neurosis of the sympathetic nervous system. In the passive type the cause is an obstruction to the return circulation, e.g., in dilation of right side of the heart, valvular diseases, Bright's disease and the low continued fever, especially in typhus and low malarial fever.

Pathology - (1) Here we have hyperemia of the lung which is indicated by the dark and bloated condition of the lung substance, caused by paralysis of the vasoconstrictors to lungs. (2) Air vesicle distension, straining the lung substance to its utmost capacity in respiration. (3) Bloody, frothy fluid found in the air vesicles and even in the bronchi. The air cell walls are swollen and the cellular substances of the lung tissue becomes changed so that the lung resembles spleen tissue rather than lung tissue. In the passive type - (1) static condition of the venous blood; (2) Bloating condition of lungs due to lymphatics caused by lowered blood pressure and consequently lowered lymph pressure; (3) The same as in the other type.

Symptoms - (1) In the active type there is increase in amount of blood locally diminishing the air space and causing temporary partial consolidation. As the physiological signs are therefore increased, fremitus lessened, resonance partial, dullness due to consolidation, bronchial breathing heard chiefly at the base of the lungs on both sides. (2) We have dyspnoea, cough and the expectoration of a frothy bloody substance. (3) Along with this difficult breathing the feeling of thoracic depression, flushed face, full strong pulse, congestion of the eyes and palpitation of the heart with the short dry cough. If these symptoms develop suddenly it indicates a sudden congestion or a flow of blood to the lungs.

If there is febrile temperature at same time there is probably congestion that precedes pneumonia, this following in ten to twelve hours if not aborted. It is easily aborted at this stage, patient being treated constantly every hour or so.

In the passive type - (1) develops slowly, taking several days and marked by gradual increase in the difficulty of breathing, the tendency to partial superficial cyanosis, frequently a very severe hacking cough with expectoration for a time and then followed by consolidation of the lungs; (2) there is partial dullness over the lung area, with feeble respiration and bronchial breathing.

The pathology of this type is the gradual slow congestion with a static condition of the blood followed by bronchial rales. It usually affects both sides and the base of the lungs. In many cases it is secondary to mechanical obstruction of the blood, e.g., in valvular diseases of the heart, in what is called a hypostatic congestion as well as in the cases of fevers with congestion, as in exhausting typhoid or prolonged malarial fever the resonance is slightly lessened and the sounds slightly tympanic.

Treatment - Lesions found in connection with lung area of spine, primarily muscular, second to seventh dorsal, secondarily osseous lesions in the vertebrae and the corresponding ribs. The principal point to be aimed in this treatment aside from the correction of lesions is the equalization of the circulation and the free distribution of blood through the systemic circulation so as to prevent pulmonary stasis. Specific treatment -

(1) With patient on side, begin at the lower cervical and go down the spine moving the muscles up and out at first lightly and then more deeply as far as sixth dorsal. Sometimes strong inhibitory pressure will produce paroxysms of cough and if so relax the muscles deep down thoroughly.

(2) Relax muscles of the neck by rotation and extension of the head and neck and by raising the clavicles. In connection with the upward, backward and downward movement of the arm.

(3) Articulation of the spine downward to overcome incoordination in breathing from nervous side.

(4) With patient on back treat first six ribs on both sides at same time if possible, raising ribs, pressing lightly at the angles and at the same time pull the patients arm up over the head while the patient is inhaling, then vibrate freely over the chest to expand and stretch the intercostal muscles.

(5) Strong and deep vibration over the lung area on the thorax, both anterior and posterior, will free and equalize the circulation of the blood in the lungs.

(6) Make the patient take regular breathing exercise in connection with treatment so as to liberate and keep free the lungs, if there is obstruction to breathing vibrate upward toward the clavicles over anterior chest. In connection with every second day give the patient a treatment with the knee in the interscapular area and pulling the arms up and backward, gradually making the patient breathe more deeply. Try to make sure of the lung capacity of the patient before you make them breathe deeply.

(7) Good vasomotor treatment in lung area to stimulate the circulation. From second to seventh dorsal.

(8) If patient is subject to coughing and hemorrhage use hot foot packs in dry form. Also treat for these conditions.

(9) Give patient absolute rest in bed, no warm or hot drinks. No food for twenty-four hours, then if patient begins to gain diet as in rest cure.

(10) Finish up with strong inhibitory treatment in the vasomotor area so as to prevent the blood from being excited and remaining in an excitable condition. Begin in dorsal region, then to upper cervical. This applies to lungs as well as kidneys.

Oedema of the Lungs - Here we have a serous exudation, taking place into the pulmonary tissue and the air cells. The marked symptoms found are - dyspnoea, moist cough, bloody expectoration resulting from stasis in connection with the obstruction to the venous return of blood from the lungs. The right ventricle is weak and unable to resist and overcome the obstruction, with result oedematous exudation. The lung tissue becomes swollen and this represents a state of consolidation.

Pathology - (1) Change found in connection with right side of heart in venous obstruction; (2) the lining membrane has lost its elasticity. As soon as the chest is opened it collapses. (3) If it follows congestion of the lung, the lung tissue will be red in color. (4) If it is associated with oedema of the body system in general, it will be pale in color. Section of the lung tissue gives oedematous patches filled with an albuminous fluid, either clear, reddish or mixed, in the last case it is kind of brownish white red liquid filled with air bubbles.

Symptoms - (1) The first marked symptom is dyspnoea, giving a rapid rattling breathing, the muscles that are called into play in force respiration being inactive causing an asthmatic feeling of oppression and facial anxiety; (2) Along with this there is a constant irritating cough with a blood streaked expectoration; (3) The action of the heart is greatly exaggerated followed by spells of heart depression, sometimes almost to stoppage of heart action. The face is flushed and then pale, the left ventricle being unable to keep up constant action; (4) Cyanosis is found when there is effusion into the air cells. Pulse is feeble, surface of the body is cold, breathing is quite shallow. Stupor and coma are frequently found. (5) The physical signs, percussion note is slightly impaired, the vesicular murmur is lost in diffused rales. The only disease that is liable to be confounded with is acute pneumonia. It is easy to differentiate the two, however, in their development. (1) Oedema is always associated with pulmonary obstruction or embolism, plugging in connection with the pulmonary artery or some of its branches. Symptoms will depend upon the size of the vessels involved. If the artery that is closed is a large one death will be instantaneous. If a large branch of an artery is closed we get acute dyspnoea, pain in chest, interrupted respiration, hurried and frequent respiration. Face pale and cyanosed, veins swollen, great perspiration, irregularity in the heart action, subnormal temperature giving place in a short time to febrile temperature. If the embolism is septic there is septic pneumonia following. (2) In oedema there is presence of albumen in sputum and urine.

Treatment - Here we have primarily a contracted condition of muscles in thorax. The lungs are tightly compressed, especially in connection with intercostal and pectoral muscles. In addition to this the muscles in the neck are all tightly drawn cutting off the venous circulation. The point in treatment is to relax the contractured condition of the muscles mentioned.

(1) Place the hand on either side of the neck so as to catch with the fingers the muscles that lie over the lower clavicle area anterior and take in the first rib. Apply pressure, rotating head from side to side at same time. Then raise the clavicles and relax the muscles in the interscapular area.

(2) With patient on back relax muscles in lower cervical and dorsal areas, giving special attention to the last cervical vertebrae, first rib, third to fifth dorsals, center where you reach pulmonary plexuses, circulation, etc.

(3) Strong stimulation at fourth and fifth dorsal vertebrae, the circulatory center in connection with heart and lungs, also in lower splanchnic area. Place the hand over the anterior thorax of patient and pull up arm while patient inhales and exhales, which produces free oxygenation of blood.

(4) Vibrate over the lungs through the anterior thorax on both sides. The object is to stimulate the reaction between the wall of the thorax and the lung.

(5) Alternate stimulation and inhibition in the vasomotor region of neck. This is to reach the nerve fibers that go into the medulla and the effect downward all over the body. Object is to make the systemic circulation work faster.

Pulmonary Embolism - Formation of small coagulum or clot acting as a plug in the pulmonary artery or branches. The blood clot usually originates in the veins or in the right side of the heart, in endocarditis. The symptoms are those of (1) sudden obstruction, (2) acute dyspnoea with a severe struggle for breath, gasping breathing; (3) pain in the chest; (4) interrupted respiration, being increased in frequency and hurried to exhaustion; (5) face pale and cyanosed. The veins are swollen, especially the jugulars of the neck; (6) arrhythmic heart action with a tendency to subnormal temperature. Febrile temperature develops if oedema is found. Pulmonary embolism usually terminates in oedema. If the embolism is septic then we have a case of septic pneumonia or a localized septic abscess condition of the lungs. There is no morbid anatomy. The pathology would be that of gangrene.

The treatment - is largely the same as in oedema. Special attention is to be given to - (1) The equalization of circulation of the blood.

(2) Give strong stimulating treatment in the upper cervical and sub-occipital regions so as to keep a continuous circulation to and through the head. The great danger in pulmonary embolism and all types of embolism is coma and collapse.

(3) At point of pain over the anterior thorax apply strong inhibitory pressure. Follow this by the elastic movement of the thorax from anterior to posterior using the hands as media. The point of pain is the point of embolism.

(4) Strong vibration over point of pain may help to break up the embolus.

(5) Also apply friction to get pulmonary reflex to lung, located over the cartilages in sternal field. This treatment is applied to the liver through the same reflex, ninth and tenth costal cartilages.

(6) Diet the patient very lightly and give as little fluid as possible. In apoplexy reverse treatment, i.e., treat -

(1) Upper cervical stimulation.

(2) Second to fifth dorsal, stimulation.

Broncho-Pneumonia - Sometimes called capillary bronchitis, also catarrhal pneumonia. Here we have an inflammation of the small bronchioles and the settlement of deposits in the terminale of the blood supply in connection with the air vesicles. It begins in an inflammation of the bronchi and extends into the capillaries and then into the air vesicles. We have three stages of development - (1) Bronchial stage, (2) Capillary stage, (3) Air vesicle stage. All stages are marked by (a) congestion, (b) progressive inflammation.

It is seldom if ever primary. Found only in children and old people, especially in those that are very weak, particularly where the respiratory system is deficient. It is found secondary to acute bronchitis, measles, diphtheria, scarlet fever, whooping cough and pulmonary oedema. It is sometimes found primarily following exposure, especially in rickety children, or children who are troubled with excessive diarrhoea. There is also a traumatic type, which is found when there is some foreign substance like food, blood, broken-down lung tissue which enters into the lung and lodges in the small bronchi, also in connection with laryngeal paralysis, apoplexy, coma. Sometimes it is found as a complication of such diseases as smallpox, erysipelas, typhoid fever and the grippe.

Lesions found are in connection with subluxations of ribs and vertebrae, second to fifth ribs and corresponding vertebrae, also fifth and sixth ribs affecting the pulmonary vasomotor centers. In acute cases there is intense muscular contraction in the same thoracic area. In many cases the primary origin of it is tuberculous heredity and neurosis.

Pathology - (1) Starting point is congestion or inflammation of the bronchial tubes; (2) arteriole congestion and inflammation; (3) capillary congestion; (4) thickening and enlargement of the walls of the blood vessels; (5) settles down and affects both lungs in which we find an increase in weight due to consolidated areas. It affects principally the base of the lung, patches of slate color being found in the collapsed areas of the lungs. There is a reddish color of the lungs on section, the terminal branches being filled with mucus and the air cells with dead leucocytes, pus cells, broken down epithelium, etc.

Symptoms - The onset is gradual except in injury, beginning in (1) chilliness; (2) feverishness; (3) accelerated respiration; (4) difficult breathing; (5) severe cough. Then follows great exhaustion of the patient with prostration, rise in temperature

respiration from 60 to 70, hard cough with mucus and muco-purulent expectoration, rapid pulse. Some claim that streptococci may be found in the sputum. Another well marked symptom is deficient oxygenation which is shown by pallor of the lips, dark color of the nails. Anemic conditions of the patient, the patient is sleepy and the tendency to insensitive condition due to excessive amount of CO₂ that accumulates in the system. At this stage the patient may become comatose, here the face changes pale to livid and this is followed by death if something is not done.

The physical signs are those of consolidation, e.g., (1) fine clear rales; (2) slightly impaired resonance; (3) slightly dull percussion note and (4) dragging in and retraction of the sternal cartilages. This last sometimes remains permanent.

Treatment - The condition to be dealt with is one of pressure or obstruction resulting in interference with blood supply, causing vasomotor paralysis and also the pressure that interferes especially with the nerves that regulate lung action. In some cases there is obstruction to the return venous blood. In treating this case treat from one of two standpoints.

(1) Abortive treatment. (a) Where a small child has any bronchial symptoms keep the child warm, well protected from cold and well nourished, especially in convalescent stages of childhood, measles, chickenpox, etc., also keep the child in open air. (b) Give persistent treatment in the vasomotor area for the lungs, looking particularly to the third to fifth dorsals, the point of vasomotor to the bronchi and bronchioles. (c) Treat carefully the muscles of the anterior thorax by vibration, spreading the ribs and raising the thorax as a whole. (d) Look especially to the vagi and see that they are free from osseous and muscular lesions. The vagi innervate the lungs and the muscular walls of the bronchial tubes and are reached best at the atlas and axis and along the sheath of the carotid. (e) Look particularly to the first rib and corresponding vertebrae, also the seventh cervical, to prevent any abnormal pressure on the inferior cervical ganglion. All sympathetic impulses passing to the lungs pass through this ganglion. (f) Free the lymphatic circulation by treatment over the anterior transverse processes of the last three cervical vertebrae, object is to flush the lymph and to wash out dead cells, etc. If muscles are contracted remove contracture. (g) Give treatment to equalize circulation, pulmonary and systemic at fourth and fifth dorsals.

(2) The curative treatment. Here the main point is to open up the vasomotor system over the entire organism. (1) Treat the muscles along the spine to relieve contracture. Look out particularly for tender points at the last three cervical vertebrae, first to fourth dorsals and first two ribs. Correct any lesions that are found. If no lesions are found give articulatory treatment in these regions.

(2) Treat the ribs, second to eighth, trying to articulate and raise them. With patient on back place your fingers in at the angles of the ribs, raise arm up, backward and downward.

(3) Look to condition of muscles on both sides of the neck, especially where they are liable to press on the pneumogastric or the superior cervical ganglion, also pay attention to the

muscles in relation to the first rib and clavicle in relation to the inferior cervical ganglion.

(4) Vibrate over the muscles on the anterior thorax and also over the lungs to promote the elastic reaction between the thoracic walls and the lungs. Follow this by treatment to spread the ribs.

(5) In all childrens diseases keep child in even temperature 80 or 85 with free circulation of air. Give liquid diet. In broncho-pneumonia do not use deep breathing.

A case of this kind ought to be treated once a day.

Chronic Interstitial Bronchitis - Here we have a fibroid hardening or cirrhosis of the lungs and bronchial tubes. It is due primarily to traumatism and irritation. There is a chronic condition of inflammation produced by irritation and secondarily the excessive growth of interstitial substance. This substance is fibrinous and is always secondary to such lung diseases as broncho-pneumonia and pulmonary tuberculosis. It also follows lung abscesses, emphysema, sarcoma or carcinoma, etc. Sometimes the traumatic is caused from an aneurism. Some writers claim that we may have a primary cause in the inhalation of irritating dust, steel, gold, silver, etc., however, this is always preceded by an acute bronchitis. It may be either local or general, commonly it is unilateral. The part involved shrinks and when it is cut it is tough, consolidated and greenish in color. There is a large increase in the fiber material. When the left side is affected the heart is displaced and the right lung is enlarged by compensation. There is also hypertrophy of the right ventricle due to the increased amount of work thrown on it driving the blood through the consolidated tissue. It eventually results in obliteration of the air vesicles, contraction of the lung tissue and dilation of the bronchi which is due to compensation.

Symptoms - The most marked are (1) chronic cough; (2) dyspnoea accompanied by expectoration sometimes. There is no febrile temperature the health of the patient being good until quite late in the course of the disease. (a) The first physical sign the patient shows is emaciation along with physical exhaustion and also weakness, also mental; (b) the ribs and the chest become retracted, the ribs close together, the interspaces in some cases being entirely obliterated; (c) clavicle and shoulder on the affected side are dropped down and along with this we find a spinal lateral curvature corresponding to the dropping of the shoulder; (d) the heart is displaced toward the affected side and the other side is enlarged by compensation. If the right side is affected the apex impulse is sent to the right of the sternum. If the left side is affected the precordial area is enlarged upward because of the throwing down of the shoulder; (e) there is an increased fremitus, particularly at the apex, at the base there is a pleural thickening; (f) percussion gives an impaired resonance, increase of density of the lung tissue. There is a tympanic note over the dilated bronchi, a respiratory or bronchial murmur in some connection, the sounds are feeble, accompanied by bronchial rales; (g)

in the late stages the right side of the heart is greatly dilated. Accompanied distinct murmurs are heard and the case usually terminating in chronic or acute pneumonia, or a sudden heart failure.

Treatment - Back of this lies the acute bronchitis. Here we look for marked lesions in the lung area, second and third dorsal, corresponding ribs and muscles in that area. (1) The patient ought to live in a very mild and moderate climate. (2) The diet of this patient ought to be non-irritating and very nutritious, nothing that would stir up gas formation and fermentation.

(3) Treat the patient very much the same as you would a case of chronic bronchitis. This means the treatment of the lymphatic system to the lungs in the middle and inferior cervical ganglia areas both anterior and posterior loosening up the muscles and vertebrae in that region. This applies to all bronchial troubles and requires the correction of any lesions found and treatment of the lymphatics.

(4) Look particularly to the second to fifth dorsal vertebrae, which is the great rhythmic vasomotor area in connection with the lungs and bronchi. Relax the intercostal muscles by vibration and kneading.

(5) Give special attention to thoracic retraction in connection with treatment and spreading of the ribs. The retraction is usually on one side and if so raise up the shoulder, pull the arm well up over the head to do this. Follow that treatment by spreading the ribs and raising the costal cartilages and the ribs. If it is bilateral treat both sides at same time.

(6) In some cases there is a localized pain at a special point, if so look for the overlapping of the ribs, especially the third and fourth. The reason for this is that the first three ribs form a base for the others. Give treatment here for raising the ribs anteriorly while the patient is expiring air by putting your finger in below the second rib; then put the other hand behind on the spine at third to fifth dorsals and then give a little jerking movement from posterior to anterior and push up with the finger at the second rib.

(7) Pay particular attention to the vagi along the sheath of the carotid, which are the motor nerves to the lungs and bronchi in relation to the muscle. Lesions of the atlas and axis and sometimes along the sheath of the carotid cause loss of motility and stasis of the lungs.

(8) Keep down engorgement by treating first and second ribs. These tend to press on the aorta and subclavian and at the same time give strong treatment in the vasomotor area of the spine, second to seventh dorsal, third to fifth for right side of the heart.

(9) Keep up the activity of the excretory systems and the action of the superficial forces. Articulate from second D to second lumbar.

(10) Stimulate the action of the heart through the heart accelerators, from the second to fifth dorsal on left side.

(11) Strong inhibition in the middle dorsal area to control cough, also pull up the trachea and relax the structures around it.

(13) Correct the conditions of the pneumogastric nerve in whatever space of its distribution. Reach the vagus -

- (a) In relation to the heart at atlas;
- (b) In relation to bronchi at superior cervical ganglion;
- (c) In relation to the lungs in the sheath of carotid;
- (d) In relation to stomach above clavicle and in relation to first rib at sternal end.

Abscess of Lung - This may originate either inside or outside of the lung. If it is primary trace it to lymph, if secondary it is a pyemic condition and has blood as medium. It is found in connection with suppurating pus glands, bronchial abscesses, mediastinal abscesses, abscess of the liver, and oesophageal cancer. It may originate from tubercular conditions within the lung itself, also from septic emboli or tumors. The sputum is usually very free and purulent in its nature, containing elastic fibers, mucus, pus cells, dead leucocytes, rarely ever anything in the nature of germs.

Treatment - (1) Raise the clavicles and first three ribs. (2) Free the recurrent laryngeal nerve. (3) Treat muscles down along the neck over scapular area, raise the ribs. (4) Vibrate over abscess field, followed by circulatory treatment. (5) Look to the condition of seventh to ninth ribs.

Gangrene of the Lung - Condition found very rarely, it is secondary to some cause which obstructs the lung circulation, e.g., traumatism, secondary to pneumonia, emboli, septic conditions of the lung, or septic conditions anywhere in the body. The condition is frequently met with in the insane, probably due to the passage of food down to the bronchi and subsequent decomposition. It is often found in diabetes. Some writers describe it as diabetic pneumonia. In well-marked cases we have the symptoms of diabetes, also pulmonary symptoms, febrile temperature, hemorrhage, fetid odor, sputum has parts of lung tissue. The disease almost always affects the lower parts of the lungs and treatment is similar to abscess of lungs.

Calcareous Lung - This is nearly always secondary to abdominal diseases, sometimes to genito-urinary diseases. The disturbance is primarily in the food, frequently it is associated with excessive lime in the water.

Treatment - (1) Diet and change water. (2) Attend to the disease that acts as exciting cause. (3) Stir up elimination.

Cancer of the Lung - This is also almost always associated and secondary to abdominal diseases. In primary cancer of lung there is effusion and consolidation and it is always unilateral. In the secondary type it is bilateral and the lymph glands are also involved. The most marked symptoms are localized chest pains, dyspnoea, cough, peculiar cancerous expectoration, s.i., bloody expectoration with semi-broken down cells in the expectorated matter. Pain is sometimes widely diffused over the entire abdomen thorax which is due to the pleuritic condition.

The face and arms sometimes become enlarged and sometimes cyanosed.

Treatment - (1) Reestablish circulation and coordinate pulmonary and systemic circulations. (2) Correction of lesions found. (3) Antiseptic treatment. Use of Alphozone. (4) Cut out stimulating or irritating foods; (5) Remove all accumulative poisons. (6) Reestablish the eliminative processes.

Hydatid Lung - Foundation is imperfect metabolism. It is located at the base of the lung. Symptoms are localized pains with hemorrhage and dyspnoea, patient gradually becoming weak with febrile temperature, symptoms of pressure with a bloody expectoration, no evidence of tuberculosis being found. It always attacks the base of the lung.

Treatment - (1) Reduce carbohydrate food to minimum. (2) Give exercise to digest the food, if it cannot be done give predigested carbohydrate food. (3) Give plenty of water for elimination. (4) Also treatment to the skin and liver to increase perspiration. (5) Stimulate flow of urine.

Collapse of the Lung - This may be produced by exhaustion of the air from the vesicles, the collapse being due simply to the absence of air, always bilateral. It is commonly found in the course of severe bronchitis, the lung tending to return to its foetal state. It is sometimes found also in the course of wasting disease or in old age when people become very feeble. The mucous membrane becomes swollen and congested. The most marked symptoms are dyspnoea, followed by apnoea, the most common physical sign being the sunken condition of the thorax and the almost entire absence of movement.

Treatment - In collapse of the lungs we have to deal with the collapse of the air vesicles, hence it is a question of the absence of air. (1) This is to be treated from the lymphatic standpoint in order to thoroughly flush the lungs.

(2) Stimulate downward strongly the pneumogastric nerve relieving any lesions that may irritate. In connection with this treatment vibrate strongly over the lung, especially over the part affected.

(3) Pull up the trachea, drop the head of the patient slightly backward, catch the trachea between the thumb and finger and pull up.

(4) Follow this by spreading the ribs while the patient freely inspires and expires air.

(5) Look particularly to the third to sixth dorsal vertebrae and corresponding ribs. The patient is liable to fall into a condition of heart failure, therefore stimulate strongly in that area, to produce cardiac force and rhythm, particularly on the left side. This is specific treatment called for in cardiac failure.

Emphysema - Here we have an increased amount of air in the lungs, with excessive distension of the air vesicles or we may have the passage of the air into the interlobular tissue or subpleural cellular tissue. There is always an accumulation

of air in the interstitial substance in emphysema. We have two types - the interlobular and the vesicular. It is found most commonly in the male sex to to lack of resistance, also in rickety children or in old age of asthmatic and cardiac individuals. Two things may be spoken of as the cause - (1) an impaired condition of the elastic tissue of the lung as result of lack of resistance; (2) an increased amount of air and increase of air pressure in the alveoli. This last is found in children particularly with pharyngeal or nasal obstruction, preliminary to tuberculosis. In adults it is found principally with occupations that incur severe muscular strain affecting principally the expiratory muscles, e.g., playing on wind instruments or in blacksmiths. Among the predisposing causes we find certain diseases such as whooping cough, measles, chronic bronchitis, chronic mitral diseases, impairment of elastic lung tissue in old age. Sometimes the condition is a hereditary tendency remaining dormant until middle life. Special type is found among coal-miners.

(1) The inter-lobular type is produced by rupture of the air vesicles, the air escaping into the interlobular tissue. This type usually follows intense or violent coughing, e.g., whooping cough, bronchitis. Sometimes the air escapes into the neck muscles and soft tissues in which case we have the physical sign of a crackling sound or noise.

Pathology - Air is found in the interlobular tissues and in some cases the pleura becomes detached, large sacs full of air being formed. In some cases there is a rupture at the root of the lung, the air passing out of the trachea upward into the subcutaneous tissues of the neck. Here we have the physical signs of crepitus.

(2) The vesicular type. Here the alveoli are dilated and the infundibula increased in size, distension beyond elastic reaction. It may be uni or bilateral. There are several distinct types - (a) the atrophic type which comes with degeneration of old age. The chest is diminished in size and the lungs grow smaller. The ribs become distorted and the chest muscles become atrophied. Dyspnoea follows. (b) Compensatory type is found in young people when a portion of the lung becomes disabled, e.g., in tuberculosis where the tubercular area has collapsed and the adjacent portion of the lung is compensative. Here the walls of the alveoli are stretched. In this stage we have the real physiological compensation, later a true emphysema when the cells become fused together.

(c) Hypertrophic type. Here the dilation of the air vesicle is caused by and compensatory to tissue derangement, e.g., muscles, ribs, vertebrae and such lesions interfering with the nerve supply to the lungs, as in case of pressure on the tenth nerve or pressure on the posterior spinal nerves. In this case we have lesions of the atlas, contraction of muscles in the neck, lesions in the second to seventh dorsal vertebrae. In some cases there is a congenital weakness representing lessened elasticity and causing increased pressure. Among the common causes is severe chronic cough as glottis is closed and air forced into upper part of lung causing accumulation of air dilation of vessels.

Pathology - (1) Collapse of thorax, becoming barrel shaped, (2) this causes the lung to enlarge because it does properly contract and expand; (3) In some cases there is puncture of the thorax on account of loss of elasticity, the lung is pale and soft, the vesicular walls atrophy, there is lessened elasticity, capillary degeneration, air connection with fatty degeneration of the air cells. There is thickening of the epithelium in the bronchial walls, a lowering of the diaphragm, displacement of the heart and dropping down of the viscera.

Symptoms - The onset is gradual in connection with three typical symptoms - dyspnoea, cyanosis and cough. (1) Dyspnoea begins with the shortness of breath; (2) Cough is found in connection with the slightest exertion, the lungs being overfilled with air and CO₂. This causes a wheezing harsh expiration. (3) Cyanosis becomes marked in connection with excess of CO₂, the chest being rounded and bulged out at the sternum. (4) In addition we find separation of ribs, a widening of interspaces, upward projection of the clavicle, a prominence of muscles of the neck, stooping shoulders. The whole thorax is raised up too high, especially in connection with the strong tension of the scaleni and sterno-mastoid muscles. We also find a lessening of vocal fremitus. (5) Apex impulse found over ensiform cartilage because the heart is displaced to the right. There is enlargement of the right ventricle and sometimes tympanitic sounds, inspiration is short and feeble while expiration is prolonged. Along with this is bronchial rale.

Treatment - There is abnormal quantity of air in the lungs increasing the air pressure which has a tendency to decrease the blood pressure. If this occurs as a compensatory condition then we have a solid portion of the lung side by side with an overdistended portion. In this case the best treatment is as follows - (1) Keep up the movements of the lungs and thorax by treatment. (2) Stimulate the pneumogastric nerve at the atlas and axis by articulation. (3) Treatment of the vasomotors of the lungs to prevent the blood supply from becoming static. Articulate second to seventh dorsal vertebrae. (4) In the hypertrophic and atrophic types we have distorted thorax, the barrel-shaped chest, the lowering of the diaphragm, pressure upon the displacement of the heart and abdominal viscera. Correct lesions in this case in the thorax and atlas and axis in connection with the tenth nerve, at first rib, upper five dorsal vertebrae, and sometimes the liver, stomach and spleen areas. In treating this type mind two points:

(1) The correction of the lesions and (2) the restoration of the thoracic, abdominal and pelvic movements. Sometimes we have secondary to this hemorrhoidal conditions and oedema of the lower extremities. The first point in the treatment is to relax the muscles in the neck and downward along the spine and over onto the thorax.

(3) In cases which ~~we~~ have not become chronic relieve or palliate by direct treatment of the nerve supply to the lungs and thorax. This means the tenth nerve at the atlas and axis and cervical and dorsal sympathetics, the vasomotors, phrenic and spinal accessory nerves.

(4) With patient in the sitting posture give the interscapular knee treatment.

(5) Relax any contractions found in connections with the glands of the neck and especially relieve any tension found at the head of the first rib in order to get the action of the lower cervical ganglia and the first dorsal ganglion of the sympathetics.

(6) Relieve the obstruction to the jugular vein itself. Relax the muscles in the neck, raising the clavicles and the direct mechanical stimulation of the jugular vein. Catch the vein just as it comes up under the clavicle and apply moving pressure. This treatment will particularly relieve the oppression and distress found in the interlobular type.

(7) Strongly stimulate the center for the cardiac rhythm at fourth and fifth dorsal vertebrae. This reaches both the pulmonary and the cardiac plexuses. The object is to establish equilibrium between the circulation and respiration. Along with this treatment if respiration is difficult spread the ribs, particularly during inspiration, beginning at lower part of thorax. In asthmatic begin at upper ribs.

(8) Stimulate the action of the heart - (a) through the sympathetic system at the superior and middle cervical ganglion of the sympathetics; (b) by vibration right over the precordial area itself. (c) Strong inhibition from second to fifth dorsals on the left side. This is especially necessary if there is any tendency to oedema.

(9) Treatment of the splanchnic area by articulation along with the treatment of the great vasomotor area in the neck to prevent congestion of the kidneys and liver.

(10) Relax the muscles in the right and left iliac regions. Stimulate the venous circulation at the saphenous opening so as to prevent the oedematous condition of the lower extremities, especially on the left side.

(11) In connection with inspiration and expiration apply compression to the thorax, stronger during expiration. Follow this by strong and deep vibration over the thorax to establish a stronger expiratory movement.

(12) Diet to be light nutritious, in very severe cases predigested.

Spasmodic Emphysema - Found chiefly in apnoeic breathing

This is an emphysema of the spasmodic order. In this case we find the thorax tetanic and an unusual amount of air in the lungs, i.e., the spasms result in the suspension of expiration.

Treatment - Have patient sitting up. Stand behind and apply pressure with thumb on either side of the angles of fourth to sixth ribs. At same time throw fingers over shoulders on clavicles, applying strong pressure between the two points, while pulling the thorax backward and making patient breathe. Along with this you can stretch the diaphragm at the same time by placing the knee in the interscapular area. Give above treatment to two sides of the thorax.

(3) Relaxation of the interscapular muscles. Steady pressure at articulation of first rib and corresponding dorsal vertebrae.

Increase this pressure by pushing the head of the patient backward. This is the best method of stopping the paroxysmal type of cough.

(3) With patient sitting up stand behind and place arm around patient from posterior to anterior, catching the costal cartilages at the level of the diaphragm and pull up strongly while applying pressure of the thorax on the back of the patient. When pulled up well let go suddenly and repeat the operation.

(4) Along with this treatment give strong antero-posterior traction upon the thorax letting go quickly as in the other case. Repeat these treatments in either case until you get relief from the paroxysms, then treat the case as a regular case of emphysema.

Pleurisy - This is a disease which is frequently associated with different lymphatic structures in relation to and involving the pleura, or covering of the lung that is secondary. (1) The starting of the disease is a disturbed secretory condition in relation to the membrane and glands imbedded in it. (2) The disease when started is generally inflammatory in nature and either uni or bilateral. (3) There are three marked types of corresponding three stages - serous, plastic and purulent. The inflammation is either acute or chronic, nearly always secondary to some more general disease. In some cases it represents an infectious disease, particularly where it is secondary to some primary infectious condition. Sometimes it is secondary to displacements or injuries of the ribs or vertebrae, diseases of the lungs, especially exudative type, mediastinum or oesophagus. Sometimes it is secondary to disease of the liver, pancreas, spleen, or appendicular diseases. It is most commonly secondary to some pulmonary disease, especially a disease of the superficial pulmonary type. Some writers divide this into simple and purulent. The last is technically known as empyema.

There are two great exciting causes in connection with the production of pleurisy - (1) some kind of infection; (2) some irritating cause found in the circulation of blood, e.g., the germs of toxins of tuberculosis, scarlet fever, septicemia, Bright's disease, diabetes, gout and rheumatism, also pneumonia, most common form is that when follows delayed resolution in pneumonia. The real type is acute pleurisy.

Pleurisy may be defined as an inflammation of the pleural membrane either uni or bilateral, inflammation is always preceded by disturbed secretion in the pleural field. In acute forms are two subdivisions of pleurisy, viz., dry and effusive, either primary or secondary to some lung disease. (1) The dry type is called plastic pleurisy and is usually secondary and in a few rare cases primary, in connection with mechanical injuries, bad air, cold, etc. The onset here is sudden with high febrile temperature in a child, either with or without chills, followed by very sharp cutting pains at the level of the nipple and radiating around the axilla. The cutting pain is caused by friction of the inflamed surfaces, always aggravated by cough and breathing movement of thorax and body. The result is rigidity of the thorax and close packing of the ribs. The

physical signs are - (1) friction sounds; (2) very fine superficial rales; (3) rubbing sounds, widely diffused over one or both sides. (4) Inflamed surfaces become adherent and in this case you get the physical signs of superficial consolidation, that is, superficial dullness. As secondary condition this type of pleurisy arises from chronic lung diseases. There is very little serum found in this type and what is found becomes a sort of paste and causes an adhesion to the surfaces.

(3) The effusive type. Here there is an abundance of serum and we may find a number of varieties of this type: (a) the sero-fibrinous type, in which there is little lymph exudation, the two layers of pleura being separated by serum. This type is associated with as a cause of exposure to cold, damp and injury. Some cases develop from tuberculosis infection. This type is most common in injuries to the chestwall, vertebral and rib lesions, thoracic muscles contractions interfering with the intercostal and phrenic nerves, obstructing the circulation of the intercostal and internal mammary arteries. This causes the fluid to pass into a state of malnutrition, furnishing a field for germ action. When the blood is cut off serum exudation takes place and following fibrin precipitation and deposits follow. The fluid is of yellowish color and in the fluid we find red and white corpuscles, uric acid, sugar in different forms of crystals.

The most common physical signs are (1) displacement of the heart. If the effusion is on left side the heart is pushed to the right, the apex beat is in the epigastric area, the lung pressed back to the posterior wall and the diaphragm is inert on account of the pressure of the fluid downward. (2) If the right side is involved the displacement of the liver and the downward pressure of the diaphragm on the right side. (3) With chill, intense dragging downward pain, in the affected side or sides, febrile temperature with recurrence of chills, the pain being sharp at first and cutting, later dull, aching, and aggravated by the cough, temperature high, marked dyspnoea, which becomes less as the effusion increases. (5) Then development of cyanosis and diminution in the urine which is very marked. Uremic symptoms appear in the late stages frequently.

The physical signs are enlargement and immobility of the affected side of the thorax, close packing of the ribs, apex beat displaced, vocal fremitus, lessened, dullness on percussion, hyperresonance in the subclavian area, friction sounds, as the fluid accumulates the sounds become more bronchial, also weakly metallic. The sound is most marked below the upper level of the effusion.

Empysemata - Here we have always a purulent condition. It is generally secondary to some infectious fever, scarlet fever, measles, tuberculosis, etc. A fractured rib from traumatic type may penetrate into the pleura and produce this condition. When the trouble is due to injuries the fluid is fetid in odor, there being two layers in the fluid. The upper layer is greenish, the second is a purulent semifluid. This type comes on suddenly with rigor always. Temperature is very high, the rigor being followed by a series of chills, in-

tense pain in the side corresponding with pleuritic, very profuse sweating, rapid heart action, feeble pulse, rapid emaciation, of the patient, thick urine containing albumose and leucocytes. Sometimes we find perforation of the pleura in connection with the oesophagus, stomach, pericardium and sometimes into the spinal canal. This is frequently found in children following injuries to the chest. In some cases it points outward through the interspaces.

Tuberculous Pleurisy is secondary to tuberculosis in connection with a simple pleurisy.

Hemorrhagic Pleurisy. Here the effusion is of blood instead of serum. It is secondary to some type of traumatic rupture, tuberculosis of the lungs, emphysema, Bright's disease, and cancer. The last is the most prominent form.

Treatment - Pleurisy we said is primarily a secretory disturbance. In treatment of acute pleurisy - (a) the most common lesions are subluxations of the ribs, down to the tenth rib on the left side and to the ninth rib on the right side; (b) we have lesions of the cervical vertebrae, atlas and axis, affecting the tenth nerve, this nerve representing the viscero motor nerve in muscle, bronchi, pleura, etc; (c) third to fifth cervicals affecting the phrenic or phrenice and sympathetics; (d) lesions of the first rib and clavicle affecting directly the subclavian and internal mammary circulation; (e) contractions of the spinous muscles in the same area interfering with the intercostal blood and nerve supply. In some cases all of these lesions are found combined together causing interference with secretory motor, viscero motor and vasomotor nerve supply to the pleura. Any spinal lesion involving any spinal articulation in the pleural segment of the spine acts by irritation as an obstruction to the pleural blood and nerve supply. These lesions cause (1) congestion and inflammation, (2) then there is added a case of infection; (3) the infection enters and localizes in the congested blood field and by irritation produced pleurisy. The first point in the secondary treatment is (1) to have the patient take absolute rest in bed, avoiding all excitement such as stimulating drinks, irritating food. Give the patient nutritious food with as little fluid as possible.

(2) Treat intercostal muscles. Cervical and spinal m's downward to lower C region. This will set free the pneumogastric, phrenic, sympathetic and intercostal nerves.

(3) Free and raise clavicles, then the ribs, especially first two and articulate below second rib.

(4) Correct lesions in dorsal area. Articulate vertebrae even if no lesions are found.

The Effusive Type in addition to the four points, (5) raise and spread ribs so as to get free movement of thorax to free structures. With patient on back place fingers of one hand at angles of ribs and pull up arm on same side to spread the ribs. With fingers between the head and angle spread the ribs.

(6) Treat superficial circulation at fourth and fifth D and at same time stimulate the action of the superficial fascia, skin, kidneys, intestines, to assist in elimination of serum.

(7) If pain still continues place patient on stool, fix your thumbs in the inner side of the angles of third to fifth ribs pressing tightly while some one raises arms upward, downward and backward. This is strongest treatment to intercostal m's and expand chest.

(8) If pain still continues place knee in same position as thumbs were pressing tightly while the arms are moved upward downward and backward. Treat frequently until the pain is relieved, as an aid to relieve it give strong vibration over the area of third to fifth ribs.

(10) While the patient is freely expiring air compress the thorax from anterior towards posterior in order to assist respiratory action. In pleurisy we have short quick expiration and the idea is to lengthen the expiration.

(11) Open up lymphatics, giving thorough treatment at middle and lower cervical area.

(12) Vibration over seat of pain deep enough to cause reaction between pleura and thoracic wall.

(13) Strong treatment to neck to relieve contraction of muscles and to equalize the circulation through the vasomotors.

(14) In severe cases where fluid accumulates it is sometimes necessary to aspirate by the use of an aspirating needle at the seventh interspace in the midaxillary line or at the eighth interspace at the angle of the scapula. When you insert the needle insert close to the upper margin of the ribs.

(15) In empyema give strong vibration over the point of abscess or where the abscess is likely to form, at the point of pain. The weakest point in the thorax is the fifth interspace and the abscess is likely to point here. While you vibrate strongly inhibit at the corresponding region of spine.

Diaphragmatic Pleurisy - Here we have an inflammation of the pleura and the adjacent portions of diaphragm. It is nearly always of dry or plastic type. Most marked symptoms are: (1) intense epigastric pain, along path of tenth rib, beginning at anterior portion of the rib and extending posteriorly; (2) the pressure of the rib, especially where it is twisted, causes a cutting pain; (3) pain is intensified by deep inspiration, there is a dyspnoea, more or less severe, according to the intensity of the pain; (4) in severe cases there is marked febrile temperature, also delirium and bronchitis, and comatose conditions, corresponding with apnoeic conditions.

Treatment - Treat the patient largely as you would a case of acute pleurisy, excepting that - (1) particular attention is to be paid to the tenth rib, this is point of localized pain.

(2) Pay attention to the diaphragm, giving treatment for stretching and raising it.

(3) With patient in sitting posture place fingers over transverse processes posteriorly of fourth to sixth cervicals giving inhibitory pressure and then vibration to relax m's then push fingers with muscles around from posterior to

anterior of transverse processes and continue this pushing down with fingers to the articulation of first rib. Following the steady pressure give moving pressure over the same field. This enables us to get the phrenic nerve and to stimulate its action in connection with diaphragm.

(4) Give vibratory treatment over epigastric area, first light, then deeper, pressing lightly over stomach, gradually increasing the pressure until you get elastic resistance from stomach.

(5) Give the vasomotor treatment rhythmically, i. e., first stimulating then inhibiting.

Chronic Pleurisy - Here the acute form of inflammation becomes chronic. It is usually the result of an acute attack of the dry or plastic type; in some few cases it develops from the tubercular type. It may also originate from the effusive type, the fluid being absorbed, the two layers of pleura being separated by sero-fibrinous material, this substance becoming organized into a type of connective tissue. It is usually found at the base of the lungs, causing as a physical sign a flattening of the chest.

Pathology - (1) In addition to the pathology frequently found in the acute type we find (2) the two layers of sero-fibrinous substance which become organized and this represents the morbid anatomy. (3) Sometimes this matter is mixed with tubercular germs in which case the tubercular symptoms are found. The lesions are lower cervical and upper dorsal, and corresponding ribs involving the first dorsal ganglion of the sympathetics. This gives rise to a set of marked symptoms, unilateral flushing of the face, unilateral sweating, dilatation of the pupil of the eye on one side.

In other types of chronic pleurisy there is marked deformity of the thorax, beginning in the contraction of the muscles, followed by compensatory emphysema on the opposite side, heart dislocations, sometimes so that no heart impulse is perceptible in the thorax at all.

Among the lesions found in these other types are spinal curvature, displacements of the scapula, deformities of the shoulders, overlapping of the ribs at the base of the thorax and individual rib retraction.

The effusive chronic type is found especially in children and is nearly always pyemic in nature. The physical signs are similar to the acute type, except that the patient seems to be in normal health during the day. This type is usually found following an attack of pneumonia. If there is pyemia then we have the characteristic symptoms, febrile temperature, with tendency to change to subnormal, chills and sweats. In this case it is impossible to restore chest to normal, even if all the fluid is absorbed on account of the great irregularity of the spine. We also have chronic hypertrophy of the lung making temperature harder to reduce. As a modification of this chronic type we have pneumothorax.

In pneumothorax we have an accumulation of air in the pleural cavity. It is a rare condition to be found. It is

also found associated with inflammatory or serous exudation similar to that of hydro-pneumo-thorax, chy and hemo-pneumo-thorax. This may result from perforation of the chest wall and pleura, rupture of the lung from violent strain, perforation from the pelura alone or cavity formation as in pulmonary tuberculosis, perforation of pleura from diaphragm in malignant abdominal diseases like cancer or the simple accumulation of gases which have entered into the pleural sac by gaseous absorption. The most common cause is tuberculosis involving the lung tissue and pyemia, like the pyemic type of pleurisy. The right side is almost always affected. Signs are - dislocation of the heart to the left side, sometimes the liver and spleen are dislocated. The onset is sudden, generally in connection with a spasm of coughing or vomiting. The air or gas escaping into the pleura. Patient feels intense pain in the thorax, there is marked dyspnoea with feeling of suffocation sometimes resulting in fainting with collapse. We also have cold extremities and weak pulse. In some cases the onset is gradual in which event the pain is less severe, dyspnoea slight, thorax greatly distended, especially on the affected side, interspaces bulge out and the thorax as a whole is immobile, the apex beat is displaced and breathing is short and rapid, the percussion is tympanic, except when the distension of the thorax is extreme in which case the note is dull, the diaphragm, in some cases breathing sounds are suspended with the exaggeration of the bronchial sounds, getting the metallic or cracked pot sound. There is a diminution of the vocal fremitus.

In hydrothorax there is an accumulation of serum that has transuded into pleural sac. Secondary to valvular diseases, sometimes Bright's disease or general dropsy. When condition is secondary to heart diseases it is unilateral, when secondary to kidney disease it is bilateral. The fluid found is clear, alkaline in reaction and of low specific gravity. The cause is compression of the thoracic duct, the thoracic veins or the superior vena cava in connection with aneurism or some type of tumor. There is always found a displacement of the diaphragm downward which is one of the causes aggravating the condition because it interferes with the thoracic duct. Lesions are sometimes found in the middle dorsal area.

Symptoms - Dyspnoea, cyanosis, asthmatic spasms, feeble circulation and the physical signs of pleural effusion.

In Hemothorax there is effusion of blood into pleural sac due to some rupture or to a serous effusion in connection with a typical case of carcinoma or secondary to some type of tubercular disease. It is secondary to cancer. When cancer begins to break down it throws out the effusion into the pleural sac.

Treatment. Chronic Pleurisy - Same line of treatment as in acute pleurisy, treatment should not be so often as in acute. Among the special points to be attended to are:--

(1) Try to correct the condition of the ribs so as to relieve tension of thoracic wall. Bulging out is found on the anterior thorax only and this can best be dealt with by simple pressure so as to cause absorption.

(2) If the thorax is very rigid try to relax it. Do not give treatment of raising the ribs as given before with patient lying down, but have patient sitting up, then stand behind the patient, put arms around them and pull thorax back from anterior to posterior against your own chest while patient takes breathing exercise.

(3) Look particularly to the first dorsal ganglion of the sympathetics in its relation to the muscles and the relation of first to third ribs to the articulating vertebrae.

(4) If the case is one of the effusive type stimulate the vasomotors in the neck and in the dorsal region.

(5) Always along with this give strong stimulating treatment along the dorsal and lumbar spine to free the kidneys, the skin and superficial fascia.

(6) Have patient take tepid bath every day and Turkish baths about twice a month.

In Pneumothorax - (1) If it is severe use the aspirator to remove the air, closing up the orifice.

(2) Expand chest gently with patient lying down. You can use a modified form of artificial respiration.

(3) Raise arms of patient above head and gently lift clavicles while patient breathes freely. Follow this by treatment to diaphragm, keeping patient's arm above head and expanding and contracting the diaphragm of patient.

In hydrothorax - (1) point in treatment is to treat the organs which are the cause.

(2) As the effusion accumulates there is an added element in form of venous obstruction caused by pressure on nerves interfering with capillary flow. Capillaries involved are of lungs and pleura. (a) Give general treatment to open up circulation, especially venous and lymph; (b) this is done by treatment to spread ribs and relax muscles on anterior thorax; (c) treatment to diaphragm to relax it.

(3) Look to muscles of respiration. Principal muscles involved are - scapular.

(4) Stimulate venous circulation in iliac region. Along with this stimulate lumbar and sacral regions, pay attention to 12 dorsal, direct nerve supply to renal plexus.

(5) Examine condition of liver and stimulate rhythmically.

(6) Give respiratory treatment often, or have patient take deep breathing exercise every two hours.

(7) Recommend frequent use of Turkish bath every other day if necessary, object being to eliminate the fluid. The warm bath may be used instead of the Turkish, if patient cannot stand the latter.

(8) Free use of food containing potassium and sodium salts is good, vegetables, e.g., celery, lettuce, watercress, etc.

Alimentary Field - Oesophagus. - This is part of the alimentary canal lying in the thorax and is subject to all types of diseases associated with the mucous membranes and all diseases that are associated with tubes or canals, the oesophagus being a closed tube entering into the stomach.

All diseases of the oesophagus give a predominant symptom - dysphagia. Among the subjective symptoms the most common is pain, found in connection with acute inflammation. Pain in these diseases is extreme in the neck, radiating from the neck between the shoulders along the vertebrae in the interscapular area. The absence of pain in oesophageal diseases indicates erosion or gangrene. Another subjective symptom is cough. This is found in all oesophageal diseases involving pressure which veers on any part of the respiratory apparatus - in carcinoma and stricture. The objective symptoms are stiffness of the neck found almost always in acute inflammation and in abscess involving the oesophagus. Expectoration is another symptom, this being thick, mucous and abundant. Another symptom is hemorrhage found in connection with varicose veins. The blood is of bright color, alkaline in reaction. Slight hemorrhage from the oesophagus, especially associated with the emaciation of the patient indicates cancer of the oesophagus. The point of attack of this is the cardiac end and the cardiac orifice of the stomach.

In the physical examination of the oesophagus it should be made first with the endoscope, in addition to the auscultation for the purpose of finding out the presence or absence of the gurgling, bubbling sound as found in strictures or obstruction. Palpation is used in connection with enlargement of the oesophagus in stricture, the enlargement being found principally opposite the fourth dorsal vertebrae. In the organic diseases of the oesophagus the upper part is usually involved. In stricture or obstruction the lower part is involved.

Dysphagia as a symptom originates either outside or within the oesophagus - outside in connection with trachea, thyroid gland, bronchi, their glands, arch or descending aorta. In connection with oesophagus itself - displacement of it may cause pressure enlargement internally, constriction of oesophagus. This is sometimes caused from without the oesophagus, common cause is pericardial effusion, if the pressure is due to the bronchi it is at level of fourth dorsal vertebrae, where the point of pain is found. If the pressure is due to aneurism pain is found at or above third dorsal. In the organic diseases the principal one is acute oesophagitis. The most common cause of which is traumatism, presence of foreign bodies, some chemical irritant, some substance taken that is too hot and catarrhal changes that develop in mucous membrane of oesophagus in some fevers.

Pathology - (a) catarrhal condition of the mucous membrane in the form of inflammation; (b) a thickening of the epithelium; (c) ulceration; (d) the size of the oesophagus is lessened, get the typical symptoms of dysphagia.

Another symptom is pain in lower part of oesophagus, tenderness on pressure increased by speaking. Pain extends to the cardiac end of stomach, causing raw feeling or burning sensation.

Chronic Oesophagitis - Main symptom is continued pain at anterior or posterior opposite second dorsal and anterior at sternum and above clavicles. There is hard and thickened mucoid expectoration and hemorrhagic discharges where there is constriction & obstruction. It is secondary to abscess following acute oesophagitis. The organ is greatly swollen, both internally and externally, the first symptom being chills between shoulders, febrile temperature or rigors at times, pain slightened on movement of neck.

Subtypes - (1) Traumatic Oesophagitis, is painless after the painful traumatism. There is gradual localized emaciation in upper thorax and lower part of neck, traumatism being just below.

(2) Cancerous - Here dysphagia comes on gradually and there is a muco-bloody expectoration, slight pain, severe pain, due to pressure on the tenth nerve. In some cases the cancer eats into the trachea or bronchi causing violent coughing or dyspnoea, febrile temperature, enlargement of cervicle lymphatic glands and rapid emaciation.

Chronic oesophagitis is also produced by presence of foreign bodies. Here we have spasm of dysphagia, regurgitation of food and symptoms of pressure.

Another chronic type is due to dilatation of the oesophagus, rarely primary and is secondary to excessive alcoholism, distension caused by heart diseases, especially mitral valve disturbances and also due to inability to swallow, reaction from stomach, e.g., hyper acidity, a sac being formed in the posterior and inferior parts, pain also present between shoulders and tends to travel up towards mouth on swallowing. Here there is (1) dysphagia and (2) regurgitation of food with neutral or alkaline reaction and there is a (3) feeling of distention accompanied by a sensation of burning within the sac of the oesophagus. The other typical disturbances are functional or affections of the oesophagus. Two are the most common - spasms of the oesophagus. Here we have the spasmodic contraction of the muscles of oesophagus caused by some reflex action, e.g., in connection with hysteria. In some cases the nerve supply is irritated by lesions of middle dorsal, luxations and twisting of the second to fourth ribs and corresponding vertebrae. Partial or complete paralysis - spasm comes on suddenly during deglutition and becomes chronic principally because of emotional conditions. Here the food does not regurgitate unless it passes in to the trachea and then comes back, regurgitates. In most cases the larynx is affected also. Sometimes the lesions of paralysis involves the medulla or the direct nerve supply to the oesophagus - the tenth cranial nerve.

Symptoms - Pain underneath the sternum, gasping for breath, choking sensations, deglutition impossible while the spasm lasts.

Treatment - In order to reach the lower part of the oesophagus the best method is to pull up the diaphragm because it increases the tension of the lower part. It lies almost in the median line, extending from sixth cervicle to sixth dorsal and lying closest to the spines of fourth to sixth dorsals.

Anterior to oesophagus is trachea, posterior part of left lobe of thyroid gland and recurrent laryngeal nerve, it is in close contact with longus colli muscle. The oesophagus passes through the thorax in relation to the left recurrent laryngeal nerve and on right side in relation to pneumogastric nerve being surrounded by oesophageal plexus, fibers passing out of plexus at lower end, hence the left pneumogastric passes in front. The right pneumogastric passes behind oesophagus, fibers being given off all around its path. The motor branches are of the spinal accessory in trunk of the tenth nerve, i.e., peristalsis is regulated by the spinal accessory. Movement of oesophagus is peristaltic (a) beginning in circular fibers and then (b) transmitted to oesophageal constrictors, longitudinal fibers contracting by reflex action, the reaction taking place from the circular fibers in order to assist them. The afferent side of nerve impulses in relation to oesophageal peristalsis originate in the (a) pharynx, being represented by superior laryngeal or pharyngeal branches of tenth cranial and also fibers from fifth and ninth cranial nerves. The efferent side is represented by spinal accessory fibers, reaching first - (a) the upper part of the oesophagus through the recurrent laryngeal and (b) the lower part through the oesophageal plexus.

Specific Treatment - In all pressure conditions look to the cause, e.g., enlargement of thyroid, bronchial glands, aneurism of arch or ascending aorta, pressure from left bronchus or trachea, enlargement of the left auricle or pericardial effusion. In these cases there is pressure against the middle part of the oesophagus, in relation to third to fifth dorsals. The best palliative treatment is to (1) articulate third to sixth dorsals, (2) press the ribs from anterior to posterior by putting pressure posteriorly and pushing thorax forward having patient breathe deeply at same time.

In oesophagitis both in the acute and chronic form (1) give patient liquid diet, milk or Eskaye food or Horlick's food may be recommended. In some cases we have to resort to rectal feeding.

(2) Look for lesions in lower cervicle and third to sixth dorsals, especially the atlas and axis.

(3) Stimulate pneumogastric and recurrent laryngeal nerves at same time by articulating the upper dorsals and ribs.

(4) Relax muscles along the neck and upper dorsals and stimulate by friction or vibration, along the sympathetic ganglia downward.

(5) Raise, articulate, spread and expand the ribs placing strongest force at sternum.

(6) Stimulate vasomotors in upper cervicle and middle dorsal regions.

(7) Stimulate excretory system, including liver, kidneys, superficial fascia and skin at second dorsal to second lumbar.

In functional derangements - (1) in spasms look out for some irritating lesion, second to fifth ribs and corresponding vertebrae.

(2) Treat pneumogastric and recurrent laryngeal nerves rhythmically vasomotors to oesophagus and sympathetics from

fourth to tenth dorsals by articulation of ribs.

(3) Relieve pain beneath sternum by (a) strong inhibition over sternum, followed by (b) vibration along the sides and (c) strong inhibition close to the spinous processes corresponding with the location of pain.

(4) Relax muscles on both sides of the neck upward and give extension and shaking movements to oesophagus, pharynx and trachea. Do not throw head back when doing this as it causes venous stasis.

Oesophageal Obstruction - (1) Treat the diaphragm outward and upward, spreading it out and relaxing the lower ribs at same time.

(2) Treat the nerve supply to the muscular coats by stimulating pneumogastrics and recurrent laryngeal nerves.

(3) In case of goiter treat and palliate obstruction by pulling up and shaking the oesophagus.

(4) Where cicatrization has taken place it is often necessary to dilate the oesophagus by means of the oesophageal sound. Alternate this mechanical dilation by strong stimulation of recurrent laryngeal nerves and pharyngeal branch of tenth cranial.

(5) Strong vasomotor treatment in upper cervical region.

In Oesophageal Paralysis - Articulate third to fifth dorsals and corresponding ribs at same time strongly stimulating tenth cranial in relation to atlas and axis.

Give good extension to the neck and articulate the cervical vertebrae gently downward.

Abdominal Cavity - The abdomen is divided for physical examination into quadrants, the umbilicus being taken as a center. The four quadrants are called the upper and lower and the right and left, all organs being located in relation to these four quadrants.

The subjective symptoms are in abdominal diseases as follows - (1) sensations, e.g., fullness, weight, distention and heat. (2) Pain. This is subdivided by writers into pain associated with skin, muscles, connective tissue and the fascia. It is also divided into acute and chronic pain - (a) acute pain points to inflammation, gastralgia, intense pain of localized perforation, etc. (b) chronic pain indicates ulcers, neurosis, dyspepsia, abscesses, etc.

The objective symptoms - These are associated with conditions either within or without the outside of the abdomen, e.g., within, changes in size, shape, color, enlargement, pulsation, effusion, muscular rigidity. Diminution in size, e.g., indicates a cancer either of the lower end of the oesophagus or the cardiac end of the stomach. Objective symptoms outside of the abdominal cavity are reflex symptoms, e.g., those we find osteopathically along the spine, pain, tenderness, lesions, etc.

Stomach - One of the most common conditions of the stomach is enlargement. If it is general the enlargement is uniform. If it is localized it is non-uniform and in this case it takes on the tumor form. Superficial color of the skin of the abdominal cavity differs only in the umbilical pubic line which is of a

darker hue. This color is increased in darkness in all cases of pelvic obstruction, congestion and inflammation. The right and left upper quadrants vary in color in liver and spleen diseases dark brown blotches sometimes elevated above the surface of the skin being an indication of these diseases. In the upper quadrants enlargement of the abdomen is found especially when the stomach gives increased respiratory action known as epigastric respiration. In tumors localized in the abdominal area the respiratory movement in the epigastric region is limited, but there is present epigastric pulsation, e.g., in tumors of the stomach or pancreas and in depression or retraction of the diaphragm. In palpation and percussion of the abdominal cavity lay patient on back with head slightly elevated and use palm of hand, palpating with fingers and hand. Palpate the abdomen with the limbs straight out and then flexed. In percussion have the limbs straight out.

In appendicitis there is great tenderness in the lower right quadrant in the early stage of disease, but in later stages tenderness is diffused upward, abdominal muscles become rigid and in last stage tenderness becomes localized in McBerney's point.

In connection with stomach we have primarily inflammatory conditions of the mucous membrane. Then we have dislocation of stomach, this condition is not so very important. The stomach is also subject to morbid changes, congested conditions, mucous discharges and hemorrhages. Here we have a change in the structure of the stomach resulting in atrophy, hypertrophy or dilatation. Then we find functional changes in connection with absorption, secretion, motion, caused by some irritation either inside or outside of the stomach.

In the physical examination mark out the boundary of the stomach in epigastric area. This is done by a combination of palpation and percussion.

Determine the nature of the peristaltic movement by visual examination and by palpation. Lay down palm of hand at pyloric end and press gradually toward the cardiac end with the hand and fingers. In cases of obstruction at the pyloric end either partial or complete you can palpate distinctly the anti-peristaltic movements under the hand and fingers. This is an important point because if the obstruction is at the cardiac end we have never anti-peristaltic. Endoscope may be used in examination of stomach. Auscultation is used to determine relation of heart to stomach conditions and vice versa. Sometimes it is also used in connection with obstruction at cardiac orifice. If it is normal there will be two sounds, a sudden quick spurting followed by a gurgling sound. The two sounds are separated by 8 or 9 seconds in a normal case. If there is obstruction at cardiac orifice the second sound will be delayed from five to 10 seconds. How many movements of the stomach? -

- (1) Diagonal movement from cardiac to pyloric
- (2) Propulsive movement, stomach moves from cardiac to pyloric
- (3) Pendular movement, center of axis at cardiac orifice
- (4) Ascillatory movement, vibration laterally from left to right, exaggerated in vertigo.

Acute Gastritis - This is an acute inflammation of the stomach produced by some form of non-specific irritation varying in severity from slight vomiting to febrile state, fever and chills. It involves the mucous coat. It is found at all ages, due to errors of diet, such as overloading the stomach, the use of too hot or too cold food, alcoholic excesses, irritation of the vagi or splanchnic nerves by some lesion.

Pathology - (1) The mucous membrane is swollen, red and covered with whitish secretions.

Symptoms - In mild cases the sense of fullness and weight with nausea, loss of appetite, tenderness in epigastric area are present. In more severe cases it comes on with chilliness, followed by frontal headache, light flashes, cold extremities and vomiting. In exaggerated cases there is a furring of the tongue, fetid odor of breath, herpes labialis, very rapid pulse and livid color of skin. Sometimes this is found accompanying toxic diseases. In this case and in cases due to phosphorus poisoning we have delirium, convulsions and collapse.

In phlegmonous gastritis the submucous coat is also involved. Here the subnormal temperature is changing to a high temperature, intense cutting pain localized in stomach, delirium at the stage where perforation takes place. The condition originates with abscesses, ulcers and suppurative conditions. It sometimes takes the form of a diphtheritic membrane formation being deeply imbedded in the submucous coat.

Treatment - In all stomach troubles the relaxation of muscles from fourth to sixth dorsal is first point. (2) The nerve supply comes from the vagi and solar plexus, after the vagi pass through the oesophageal plexus, the left vagus passing down and supplying the anterior wall, both passing into the stomach. The left supplies the left curvature, the right the greater. From the solar plexus these pass to form the gastric plexus in conjunction with the non-medullated nerves from the sympathetics uniting with the tenth nerves under the peritoneal covering. The visceromotors to the stomach are branches from the spinal accessory through the vagus trunk supplying the body of the stomach, both ends of the stomach being supplied visceromotorily by the splanchnics.

Peristalsis begins at the cardiac end, hence if it is affected we treat the splanchnics unless regulation of control is desired, then treat the pneumogastric.

Along the paths of these nerves we find small ganglia that enter in and lie between the longitudinal and circular coats and represent the small centers within the stomach.

The great plexus lies between the coats and represents the intrinsic motor centers - (a) Stimulation of the pneumogastric at either side of the suprasternal notch above the clavicle will produce a contraction of the pyloric orifice, the greatest stimulation being found when stimulus is applied to the right vagi; (b) stimulation of the splanchnics in the upper splanchnic area inhibits pyloric contraction, the treatment being applied here principally to the left side; (c) in opening the cardiac orifice a reflex action may be gained from the sensory nerves in the abdominal field in general; (d) sensory nerves from the kidneys and the uterine sensory nerves.

The great center in connection with the action of all these nerves is in the corpora striata. This explains the vomiting in nephritis and in pregnancy to general abdominal contraction. This action in connection with vomiting is reflex but it becomes automatic in those cases because of the contraction of the body of the stomach, the center of contraction being located in corpora quadragemina. This is a coordination center like the corpora striata. This center is inhibited while the cells in the walls of the stomach act automatically. The inhibitory center in relation to the stomach is located in the upper part of the spinal cord, hence, this explains connection between stomach and the eye, i.e.; the upper cervical region and other organs or structures we find.

Automatic cells located in the cardiac end of the stomach act for that end and also for the body of the stomach when the general reflex center in spinal cord is not in action or inhibited. In the pyloric end we also find automatic cells, this peculiar characteristic accounts for the fact that the two ends of the stomach play in opposition to one another, e.g., to open the cardiac end inhibit the pyloric end and vice versa.

Any obstruction or pressure that cuts off nerve force results in partial paralysis or in over-activity followed by partial paralysis. In acute diseases of the stomach the muscles are primarily involved. In chronic diseases we find muscular and osseus lesions.

In all gastric diseases we must examine the spine for tense muscular conditions, in deep muscles field - (a) for abnormal conditions of the muscles, for cold and hot spots and also for tender spots; (b) the abnormal contracture of the deep muscles. In this cases we have severe acute condition or the beginning of chronic; (c) looking for osseus lesions in well established chronic cases; (d) from the osteopathic standpoint we must also remember that the normal basis for stomach action is the acid and alkaline functions, hence, if any excess or deficiency is produced the nervous system is affected by reaction. The anterior portion of the solar plexus controls the acid and the posterior the alkaline element. If the acid condition predominates we find a contracted condition of the stomach itself, except in dilatation of the stomach, where there is an inhibition of the stomach contraction. If alkaline element predominates the posterior solar plexus is overactive and this represents the left side of the splanchnic system in the upper area of the right vagus nerve. Normally the acid and alkaline functions are in equilibrium. By stimulation of the stomach in the splanchnic area we inhibit acid formation.

Treatment of acute gastritis - (1) Look particularly to the organs which are primarily involved such as the heart, lungs, liver, kidneys, etc.

(2) Diet. Eliminate all irritating foods, stimulants, etc. During first week give stomach absolute rest from food. Keep patient from mental excitement, a light milk diet is good after the first week. In severe cases, especially where complicated by Bright's disease a milk diet only should be given until patient begins to get back a normal appetite. Eliminate indigestible

and bulky food. Eliminate all sweets, pastries, and all fried foods. Give food in solid form. After the second week patient may get meat in dried, smoked or scraped form. Baked potatoes may be given. In severe cases it is best to give predigested food. Later on various fruits may be given.

(3) Have patient take graded physical exercise, about three hours before or after meals. When there is discomfort in connection with stomach after eating use stomach douche or lavage. Use cold water. Same may also be used in case of bad taste in the mouth especially early in the morning. May be used in either acute or chronic gastritis.

(4) Treat chronic gastritis every day to begin with. Look for lesions and correct them, especially from third to sixth dorsal area and in the splanchnic area from sixth to twelfth D. Also look for lesions affecting the vagus nerve in the upper cervical area. In the daily treatment the point is to relax the muscles and articulate the spine.

(5) Give direct manipulation over the stomach. In doing this -

(a) Begin by strong deep pressure increasing the depth of pressure until you get an elastic reaction from the stomach and abdomen.

(b) Follow this by vibration along the marginal borders of the stomach, especially around the greater curvature.

(c) If there is pain articulate at sixth to eighth dorsals and correct lesions if found.

(d) If pain continues inhibit strongly by pressure in same area especially on right side to catch the superficial posterior n's.

(6) Look to the condition of the cartilages on the anterior thorax around seventh to ninth ribs.

(7) With patient sitting stand behind them, raise right arm of patient above head while you apply strong inhibitory pressure at fourth and fifth dorsals on both sides of the spinous processes. Lower arm of patient slowly backward. This enables us to get control of the pyloric end of the stomach.

(8) Look out for disturbances of the acid function of the stomach.

(9) Left splanchnics and right tenth nerve alkaline. Right splanchnics and left tenth nerve acid.

Gastric Ulcer - This condition comes on generally without any cause following (1) defective nutrition of the mucous membrane causing - (2) malnutrition of some local part of the mucous membrane. (3) the acidity of the gastric juice in excess erodes the m.m. at the point of ulceration. The ulcers are either single or multiple and are found at either end of the stomach or along the lesser curvature of the stomach.

They are found chiefly in female from puberty to forty years of age, principally in those whose occupation causes pressure on the costal cartilages, acts as irritating or exciting cause. In the male sex it is found for example among shoe makers, etc. In some cases it is due to injury.

Among predisposing causes are - anemia, chlorosis, menstrual disturbances, kidney lesions, syphilis, T.B., thrombosis, especially in connection with persistent vomiting where there is a pressure on the gastric artery causing stasis of the blood in the gastric mucous membrane and allowing the acid to accumulate and eat into

the membrane. Found exclusively in the female sex.

Lesions are found at middle and lower dorsal and corresponding rib lesions. In some cases there is a curvature of the spine in the dorsal area interfering with the vasomotor nerves of the walls of the stomach also lesions sometimes to the upper cervical involving the vagi and in the lower dorsal involving the splanchnics.

Symptoms - (1) In some cases (1) hemorrhage, in others, (2) intense pain, burning and grating feelings in the stomach, hemorrhage, vomiting of contents of stomach. The intense pain is localized under the cartilages of sixth and seventh ribs and in the back between 8 and 9 dorsal vertebrae, sometimes down to second lumbar. It is a gnawing and burning pain always aggravated by food, relieved by vomiting or digestion. (3) There is also a dull aching pain in the epigastric area, always increased by pressure, relieved by laying on back if the ulcer is anterior and relieved by lying on abdomen if posterior. Be careful in examining not to put too much pressure or you may produce rupture or perforation. (4) Vomiting appears immediately after taking food and there is HCl in the vomit. (5) Hemorrhage is always present. (6) In long standing cases patient becomes emaciated, dyspeptic and constipated. The differential points in diagnosis are - (1) hemorrhage, persistent; (2) persistent local gnawing pain.

Treatment - (1) Rest in bed. Give patient very light diet and very little of it and often. Use the nutritive enemata.

(2) Look to the lesions that are found, sixth to eighth dorsal posterior, also corresponding ribs, eighth and ninth ribs anterior, also fourth and sixth dorsals, and first two cervicals. In correcting these lesions relax muscles along the spine, especially in cervical and lumbar areas.

(3) Give general relaxing treatment in case of vomiting. Follow this by strong inhibition at fourth and fifth dorsals on right side and also inhibition of tenth cranial nerve in the neck on the right side. This is the treatment for vomiting in case of involvement of the posterior wall of the stomach which is usually involved. If the anterior wall is involved give same treatment on the left side.

(4) Give systematic treatment to build up the nutrition of the stomach. This is done by keeping the splanchnic area well relaxed and by direct stimulation of the vagus nerve and the direct treatment of the solar plexus.

(5) In time when hemorrhage takes place inhibit strongly the splanchnic area and over solar plexus simultaneously. This treatment lessens the blood pressure by producing an abdominal vaso-dilation. If this is not enough inhibit at the superior cervical ganglion on both sides over the tenth cranial nerve. If this is not enough apply deep pressure in the lower quadrants of the abdomen from below up to open up the veins and let the venous blood down and away from the stomach.

(6) Give circulatory treatment and keep the excretory systems well open. The main circulatory treatment - (a) strong extension treatment to the spine pulling under the axilla and on the feet of patient to get good stretching; (b) Along with this give the diagonal side pulling, also (c) give vibration over the seat of ulcer very gently.

Gastric Cancer - Due to irritating lesions. It is generally vaso-motor and involves the trophic nerves to the stomach causing mal-nutrition. The stomach is not often the seat of cancer. When it is it is generally in the pyloric end of the stomach, the type being epithelioma or soft cancer.

Symptoms - The most common initial symptoms are dilatation of the stomach. If located at pyloric end the tissues are thickened and this decreases the actual size of the stomach, when patient takes food there is feeling of oppression.

Pathology - (1) The primary changes are infiltration of the mucous glands of the stomach; (2) infiltration of the lymphatic glands; (3) sometimes ulceration and perforation of the walls of the stomach.

History of disease - The onset is gradual, (1) all symptoms of chronic gastritis being found in the gradual development of the case; (2) we also find chronic pain, uneasiness after eating and tenderness in the stomach field, vomiting immediately after eating if the cancer is at the cardiac and a few hours after eating if it is at the pyloric end; (3) among the other symptoms are emaciation and loss of appetite. The emaciation being more acute if cancer is located at cardiac end on account of the dilatation that is produced in the oesophagus; (4) we also find oedema of the lower extremities, abdominal oedema or ascitis and epigastric tumor development with pressure symptoms; (5) other symptoms are enlargement and induration of the superficial lymph glands, cervical and axillary, (6) another symptomatic condition is a secondary change in connection with the liver causing it to enlarge, developing jaundice symptoms, the skin being of pale yellow color especially when the stomach is involved and accompanying pericardial billiousness with the vomiting of bile is also a symptom, also headache.

Treatment - (a) Cancer is primarily a blood disease. The primary cause of the disease being degenerative changes in the blood; (b) cancer becomes localized primarily through malnutrition of some local part. Secondary in connection with the abnormal growth of some embryonic or implanted cell structure. The exciting cause of localization may be some accumulation of waste or poison especially due to defective metabolism or excessive lime in the water, overuse of certain stimulants, like tobacco, coffee or alcoholic stimulants. Probably the true theory of cancer is its localization in connection with the localization of the degenerative state of the blood taking place as the result of some obstruction in the vaso-motor nerve supply to the stomach.

The abnormal cell lives upon the waste elements of the system, drains the blood away from other tissues and develops at the expense of as well as through the other tissues. The use of poisons in the field of medicine is an exciting cause, as arsenic and often from the use of patent medicines. One of the special points of treatment is to eliminate these. Cancer develops along the line of the free embryonic tissue elements. The abnormal growths may be found in several forms - (1) encysted, here we have limitation of growth by sacculation; (2) In the true form of cancer without any cystic wall or limiting membrane. In this

case the abnormal growth is imbedded in the healthy tissue and lives in the field of healthy tissue.

Specific Treatment - (1) First is correction of lesions that are found, especially affecting the vasomotor and splanchnic area, sixth to ninth dorsal area, fifth to seventh cervicals, representing vasomotor and the accessory splanchnic area. The atlas and axis in connection with vagi, the third and fourth interspaces and corresponding ribs close to the spine.

(2) Articulate the spine carefully through the dorsal area, downward to palliate pain and to prevent stasis of fluid and hasten waste accumulation. In connection with this relax the muscles completely close to the spinous processes and follow by strong stimulating treatment in the upper splanchnic area.

(3) If there is dilatation of the stomach lock particularly to the condition of the pyloric orifice and treat and in ulcer. Vibrate strongly over the region of the tumor in connection with pyloric orifice at same time giving strong inhibitory treatment at sixth to ninth dorsal on right side, close to spine.

(4) Give thorough treatment at sixth to ninth dorsals and stimulate the rhythmic action of the cardiac and pyloric orifices this treatment should be rhythmic.

(5) Keep open the eliminative organs, including the lungs, liver, kidneys and intestines.

(6) Eliminate toxins or poisons from system. Pay attention to the thyroid and suprarenal glands and the blood destroying glands. Give antidotal treatment if necessary.

(7) Diet. Give patient easy and assimilative food. Eliminate all irritating foods, like pork, tomatoes, or acid foods and fruits, also eliminate all stimulating drinks. Give diet in dry form.

Gastric Hemorrhage - Due to some organic lesion, to some irritating poison, injury of some kind to the stomach, local congestion, ulcer or cancer of the stomach, vicarious menstruation, mechanical obstruction to the portal circulation, spinal lesions involving the stomach, vasomotor area and perforation of the stomach walls in ulcer, cancer, etc.

It is sometimes difficult to differentiate between lung hemorrhage and stomach hemorrhage. Among the differential points we find - (1) The history of some stomach, liver or spleen trouble. (2) The blood vomited is not frothy as in pulmonary hemorrhage and (3) before vomiting takes place there is usually fainting or giddiness, the blood being mixed with the food contents and generally clotted. (4) The hemorrhage may be due to a transudation through the stomach walls. In this case the blood will be fluid, that is not coagulated and it will be acid in reaction on account of its contact with HCl of the stomach.

Symptoms - Among the general symptoms we find - (1) pallor, (2) Dimness of vision, and (3) dizziness, fainting. (4) In severe hemorrhage there is a great exhaustion and patient tends to collapse.

Treatment - (1) Correct the lesions that are found, affecting the blood circulation or blood pressure of the stomach. These are found (a) in the upper cervical region, the great vasomotor

area, (b) the lower cervical, the accessory splanchnic area, also (c) the lower half of the upper half of the dorsal region, the direct stomach area itself, (d) look for lesions in the lumbar area. Along with the correction of the lesions relax the muscles along the anterior thorax and the abdomen and then press the thorax and abdomen forward from the spine.

(2) Give strong stimulating vasomotor treatment, beginning at the great vasomotor area in upper cervical region and then at the fourth and fifth dorsals to equalize the superficial capillary circulation.

(3) Remove any pressure or obstruction that may be found in the jugular circulation. Do this by raising the clavicle, raising the arms of the patient above the head at the same time applying strong pressure at the middle dorsal.

(4) Relax the soft tissues around the vagi, especially in the upper and lower cervical areas. Follow this by inhibition at the fourth and fifth dorsals of the splanchnics to lessen the blood pressure by producing vaso-dilation. This treatment has the effect of quieting the peristaltic movement of the stomach.

(5) Stimulate the sympathetic ganglia in the cervical region at the same time use the hot pack for the patient's feet in order to pull the blood away from the stomach.

(6) If the hemorrhage continues give the patient hot water and salt, at same time give strong inhibition right over the superior cervical ganglia on both sides and follow this by deep inhibition over the lower quadrants of the abdomen.

Gastric Dilatation - Distended condition of the stomach.

May be due to (a) pyloric obstruction; (b) neuro-muscular atony. The condition may be acute or chronic and may be found in cancer of stomach, circastical formation following ulcer or stricture. In the neuro-muscular atony the condition may be due to obstruction to the splanchnics, curvature of the dorsal spine, by reaction from overeating, overdrinking, excessive vegeterianism, by too bulky food. In some cases it follows chronic gastritis with reaction to diseases of the heart, lungs, liver, kidneys causing stasis of blood. In some cases there is paralysis of the nerves supplying the stomach giving sudden and persistent enlargement and sudden dislocation of the heart and death following.

Pathology - (a) The muscular coat is pale and thin, the glands are atrophied; (b) if it is caused by pyloric obstruction the stomach walls are hypertrophied and you get a massive stomach.

Symptoms - (1) Same as in chronic gastritis with flatulency, vomiting. The vomiting takes place every second or third day and the quantity of food accumulates according to the amount taken. (2) The other symptoms are emaciation, vertigo, nightly asthma, depression, palpitation of the heart, great thirst, scanty urine and constipation. (3) Abdomen greatly distended, peristalsis being visible through the walls, the heart is displaced upward and the stomach bulges out. (4) Percussion gives a tympanitic note except over the lesser curvature where there is dullness.

Treatment - The condition to be treated is atony of the stomach walls involving the neuro-muscular walls. (1) Place fingers on left side of stomach and pull arm of patient slightly up over head, bring pressure downward with other hand over ilium, lowering arm of patient down and back, patient resting on left side. Repeat treatment while applying pressure at third to fifth dorsals.

(2) Relax muscles along spine and articulate from fourth to twelfth dorsal looking for posterior and lateral curvatures to right in the same region. In correcting curvature have patient on right side and spring dorsal vertebrae upward.

(3) Look to condition of splanchnic area in lower dorsal region and also the accessory splanchnics in the lower cervical. Interferences are found with the vasomotor and motor functions of vagi. Give vasomotor stimulation to help restore capillary tonicity.

(4) Relax tissues and stimulate the tenth cranial nerve at atlas and axis and along sheath of carotid. Empty stomach if necessary by making patient drink hot water.

(5) Stretch abdominal muscles. Pull arms of patient above head, flex the limbs and begin at the iliac border of abdomen relaxing muscles upward to restore tonicity to abdominal walls.

(6) Give patient rest in bed and without food for two days, then begin on light solid dry diet. Empty stomach every second day.

Gastroptosis - Here we have a feeling of dropping of the stomach by itself or along with the intestines or liver. It is due to excessive abdominal relaxation involving the m's of the abdomen, or of the ligaments supporting the stomach. Condition found mostly in the female sex and often unrecognized until the stomach, uterine and pelvic disorders are found. Frequently uterine prolapsus is due to this cause. The primary starting points may be in the (1) transverse colon; (2) the liver; (3) spleen or in the (4) stomach. It may also be due to loss of tone of the muscles in the posterior curvature of the spine causing a weakening of the nerve supply to the viscera and abdominal muscles. Sometimes it is due to downward misplacement of the floating ribs and of the diaphragm.

Symptoms - (1) Here we have the feeling of weight accompanied by pain, dyspepsia and acute spells of gastritis; (2) The great objective symptom is the presence of pulsation of the abdominal aorta; (3) The next is the presence of a hard transverse band about the middle of the upper quadrant due to tension caused by the dropping of the stomach and the pushing down of the pancreas, liver and kidneys; (4) The best differential point in diagnosis is to apply pressure with the hand over the lower quadrant upward pressure giving relief to the patient. Sometimes the wearing of a lower abdominal belt gives relief. There is an increase in the antero-posterior diameter of the thorax and a decrease in the transverse diameter of the thorax.

Treatment - (1) The first point is to look to the posterior curvature of the spine from the second dorsal down. Correct this curvature and articulate the dorsal vertebrae at the same time relaxing all the deep muscular structures.

(2) Give strong stimulation to the muscular coating of the stomach and ligaments by direct treatment of the abdominal wall and by articulation in the vasomotor area of the stomach, 4-8 D.

(3) Give direct light treatment over the upper quadrants and follow this by pulling up the intestines from the iliac region.

(4) Articulate the upper dorsals up to the seventh cervical.

(5) Give patient general circulatory treatment especially to the lower extremities and lymphatics.

(6) In severe cases give predigested food. Give food as dry as possible and feed frequently.

(7) Physical exercise graded from day to day, but do not have patient take too much exercise especially after a meal.

Gastric Neurosis - Here we have a functional disturbance due to impairment of or an interference with the motor nerve supply, the secretory and sensory nerve supply to the stomach. Found most commonly in the female sex between the ages of twenty and the period of menopause. Found chiefly in chlorotic patients. Sometimes it is found in those who are subject to great physical strain causing nervous exhaustion.

The symptoms are those of (1) neurasthenia; (2) headache; (3) vertigo; (4) neuralgia and in some cases hysterical symptoms are found. There are two common types - (1) the irritating types resulting from some irritation reflex or otherwise. Here we have the sense of fullness, weight, heat and cold in alternation. also similar conditions in the stomach area of the spine. In some cases there is excessive hunger while in others complete loss of appetite. The most common type is the gastralgic type. This is an affection of the sensory side of the nervous system, paroxysmal and periodical in nature. No specific lesions are found but is associated with reflex organic disturbances of the liver, kidneys, spleen and secondary to gastric ulcer or cancer. This type is also found in anemic subjects with menstrual disturbances.

History - It begins with intense pain in the epigastrium sometimes pain being so intense that it will cause collapse. In other cases there is a paroxysmal pain begins in the spine and radiates around the ribs to the stomach.

Lesions in ribs and vertebrae of splanchnic area involving the sensory nerves of the stomach.

Symptoms - (1) The onset is sudden, pain starting either in the stomach or spine then pain radiates along the path of ribs. (2) Strong pulsation along abdominal aorta, great pallor, sometimes distortion of the face with beads of perspiration on the face. Sometimes it is relieved by taking food. (3) There is a special type of gastralgic neurosis associated with a sclerotic condition of the nucleus of the vagus nerve, secondary to tabes dorsalis. Here we have the lightning pain in the shoulder and extending to and through the epigastrium followed by increased action of the heart. Sometimes a typical angina spasm is found.

Neuraesthetic Gastralgia is another sub-type. Here the patient is in a state of nervous irritation or depression. Here there are pains at the root of the neck extending down between the scapula, pains in the middle dorsal region, burning pain in the epigastrium radiating toward the median line. In the depressive type there is a feeling of fullness and dragging, after eating.

Hyperacid Gastralgia is another type. The HCl being secreted in excess on account of an irritation to the secretory nerve supply. The symptoms are those of hyper-acidity.

Gastro-Psychosis, is another type due to mental conditions. Here the exciting cause being mental, emotional conditions such as are found in hysteria producing an increased contractility of the pyloric end of the stomach until it is tightly over-contracted, causing the opening of the cardiac orifice by reaction, this causing belching.

The atonic type is found with gastritis and is due to a disorder in the nerve centers irritating peristalsis. Atony of the stomach involves the motor side of the nervous system. Here there is insufficiency of action both from the peristaltic side and from the secreting side of the stomach.

Symptoms - swelling of the stomach, abnormal feeling of fullness and vomiting, then either constipation or diarrhoea sometimes alternating. Here the walls of the stomach are in a state of malnutrition and atrophy or degeneration of the walls may result.

Treatment - (1) Look to the general condition of the other organs acting as irritants to the stomach. (2) Give patient general treatment for muscles and articulation of the head and neck; (3) Extension applied to the head, neck and spine. (4) Flexion and rotation of the lower limbs; (5) Give the patient the inter-scapular treatment with patient on stool; (6) Give local vibration over stomach at same time and stimulate vasomotors in the splanchnic area - 5-10 D - and in the accessory splanchnic area - 7 C to 2 D; (7) If patient has vertigo give strong extension to the neck bending the head slightly anterior and applying strong pressure in the occipital region. Give also good clavicular treatment. In all cases of vertigo test the patient in all positions for lesions.

In the gastralgic type of neurosis - there is disturbance in the sensory nerves and is consequently a sensory neurosis. It is always paroxysmal and is associated with intense pain, pain being due to stimulus of the overcontraction of the walls of the stomach. This condition is caused by hyperacidity which in turn is caused by incoordination of the tenth cranial nerve.

Treatment - (1) Temporary relief to be given by strong inhibition in the splanchnic area, correcting rib and vertebrae lesions and articulation in same area.

(2) Apply strong inhibition to tenth cranial nerve in neck, also strong inhibitory pressure at third and fourth interspaces close to the spine on the left side and strong inhibition at tenth dorsal on the same side.

(3) Vibrate over sternum from above downward. At same time apply inhibitory pressure over the epigastrium.

(4) With patient on back raise arms above head and bring strong pressure to bear with fingers of the other hand at the angle of the fifth rib lowering arms while continuing the pressure. Continue this treatment of the ribs down to the tenth rib, the object being to stretch the intercostal muscles.

(5) In case of intense pain pull the patient by the upper part of the body half out of bed and then drop down the upper portion of the body considerably below the level of the bed.

(6) Extend and rotate the head and neck pulling particularly on the anterior muscles of the neck in relation to the tenth cranial nerve.

(7) If the patient is constipated manipulate thoroughly in the ilio-caecal region and along the path of the colon to the sigmoid. If the constipation is aggravated apply rectal dilation then give treatment to the colon backward to the sigmoid. Rectal irrigation may be used if desired.

In the atonic type. Here we have the motor type of gastric neurosis also involving secondarily the secretory side of the nervous system. The primary cause is a deficiency in the secretion of the gastric juice due to some interference with the sympathetic nervous system. This interference begins almost always in connection with disturbed salivation. The salivary glands produce normally an alkaline secretion. If this alkaline secretion is not sufficient in quantity or quality the acid secretion of the stomach is not secreted normally and will not act properly on the food. This deficiency of alkaline secretion acts as an auto-stimulation on the acid irritating the fibers of the tenth nerve. The irritation of the tenth nerve destroys or suspends or arrests the action of the splanchnic nerves.

In the treatment of this case the point to be aimed at is to overcome the irritation of the tenth nerve and to counter-balance this interference with the tenth nerve by increased activity in the splanchnics.

(1) First look to the defective condition of the splanchnics, relax the contracted muscles, beginning at the first dorsal and articulate the vertebrae down to the tenth, giving particularly strong treatment at the fourth to sixth dorsals on the left side.

(2) Direct treatment over the stomach, liver and spleen.

(3) Strong inhibitory treatment over sacrum and lumbar with patient on face, raising limbs to increase inhibitory pressure.

(4) Begin at ilio-caecal region and manipulate colon toward sigmoid area so as to increase peristaltic action. Stimulate at same time lower dorsal and upper lumbar areas on the left side.

(5) Give strong inhibition from the fourth to eighth dorsal and over last three cervicals, at same time follow by relaxing the muscles in the anterior neck region inhibiting the tenth cranial nerve and stimulating the vasomotors.

Vomiting - Physiologically vomiting takes place when the stomach is (a) compressed by the abdominal muscles and diaphragm; (b) by excessive relaxation of the cardiac sphincters produced from nervous side. Sometimes there is simply nausea. (c) along

with this there is a strong effort to expel the stomach contents this effort calling into play the expiratory muscles; (d) in some cases there is an effort to vomit without being successful. Here there is an excessive relaxation of the oesophagus without compression of the stomach by the abdominal muscles produced from nervous side.

The causes of vomiting. The nerve center of vomiting is in the medulla and lies close to the respiratory center; This center received impulses from the higher centers as in emotional or cerebral vomiting. As a result of the inhibition of the medulla centers or their irritation as in injuries to the base of cranium. Also by reflex from some part of the body in connection with the sensory nerve supply.

From the center of vomiting in the medulla the impulses pass out - (a) to the abdominal muscles; (b) to the stomach and (c) to the oesophagus. Impulses that reach the medulla center pass along the (a) pharyngeal branches of the glosso-pharyngeal nerve; (b) the pharyngeal branches of the vagus; (c) the gastric branches of the vagus nerve; (d) the splanchnic nerves, via the renal, mesenteric, uterine and vesical plexuses; (e) in some cases there is an auto-stimulation of the vomiting center by the blood supply, as in septicemia, uremia, and some of the infectious diseases. In hysteria the impulses that reach the center in which poisons are present are those of inhibition, the center being held in check so that there is the lack of control of coordination in connection with the vomiting function. In vomiting there is almost always an irritant found in connection with the food or drink taken by the individual or from the condition of the alimentary canal, as worms.

If the vomiting comes on suddenly there is always some local irritating cause, if the onset of vomiting is gradual there is some reflex cause. Vomiting in acute gastritis is always preceded by nausea and accompanied by epigastric pain and tenderness and is followed later by great prostration and exhaustion. In chronic gastritis vomiting always follows the taking of food. In ulceration of the stomach after the food begins to digest vomiting takes place. In cancer hemorrhagic vomiting, i.e., the hemorrhage is the exciting cause. The vomiting we find in scarlet fever, meningitis or tumors of the brain is always of the cerebral of painless type, i.e., effortless. In seasickness the vomiting is due to a disturbance of equilibrium and is of cerebral type, the primary cause physically is a loss of a solid surface for the lower extremities to stand upon and secondary to this interferes with muscular sensations, This interference may be communicated to all the visceral organs and then transmitted to the brain as a secondary reflex. This disturbance of the brain reacts upon the organs causing a dislocation of the visceral organs and producing a tense condition of the spinal and abdominal muscles and the diaphragm and sometimes displacements of vertebrae and corresponding ribs in diaphragm field. Seasickness may exist without vomiting, the latter case being the more aggravated.

Treatment of vomiting in general - (1) The first point is rest for the patient. Position of the body is important. The body should be straight and patient lying on back. Gently elevate the head above the body. Do not give patient water to drink.

(2) Make patient breathe deeply and quickly and practice "empty swallowing". At same time pull up patients arm above head and pull up diaphragm two or three times with arms above head very slowly then lower arms gently at same time patient is slowly exhaling.

(3) Look to the condition of 8. and 9, dorsals. This effects the pyloric sphincters. Relax the muscles if contracted, if overrelaxed contract them. In both cases use the inhibitory treatment.

(4) The efferent impulses causing vomiting are carried to the diaphragm by the phrenic nerve, to the oesophagus and stomach by the tenth cranial nerve, to the abdominal muscles by the intercostal nerves. Therefore inhibit all of these nerves strongly at (a) third and fourth interspaces; (b) on both sides of spine at ninth and tenth dorsals to reach the intercostals; (c) at third to fifth cervicals to reach the phrenic nerve.

(5) Place something solid underneath the back of patient at ninth and tenth dorsals. In severe cases bend THE body of patient applying strong pressure at ninth and tenth dorsals. This is good in hemorrhage and blood vomiting.

(6) Give steady pressure over pit of stomach with solid palm of hand.

(8) Place the knee between shoulders, raise arms above head and pull shoulders backwards. Follow this by pressure at level of lower and inferior angle of the scapula and while pressure is being applied have patient breathe deep and quick.

(9) Give patient solid food to chew. Solid food should be given when patient first begins to vomit. Do not use any kind of stimulants.

Seasickness - The predisposing cause are (1) emotional condition, fear, fright, (2) anemia; (3) liver conditions, especially biliousness and torpid liver is cause in nearly every instance. The main symptoms are dizziness, nausea, faintness and attempted vomiting. The main point in treatment is to control these symptoms, i.e., palliative.

(1) With patient on back, head slightly elevated, apply strong inhibitory treatment along the spine, from sixth to tenth dorsal, the great field of epigastric reflexes.

(2) Give strong stimulating treatment from fourth to sixth dorsal. The object of this is to stimulate heart action, unless in case of palpitation when you apply inhibition.

(3) Give special attention to the phrenic nerve, the vagi nerves and the splanchnic vasomotors. The treatment in these cases is rhythmic. At same time treat directly over stomach and the solar plexus, a soft steady pressure beginning gently and increasing.

(4) If the patient is cold, trembling or perspiring inhibit strongly at third and fourth interspaces on left side to reach

vagus nerve also inhibit strongly in the cervical region and over solar plexus. Follow this by strong stimulation of the superficial circulation and by giving a lymphatic treatment.

(5) Make the patient relax thoroughly all muscles of body. If they do not relax manipulate the muscles along the spine to cause relaxation.

(6) Give rotatory treatment to the head and neck, rotating strongly to the two sides, especially pulling to the left side. If patient is dizzy hold head well to the left side at same time extending spine and this will control dizziness. If there is vertigo with dizziness inhibit in the sub-occipital region and gently rotate head from one side while inhibiting and vice versa.

(7) Look to the condition of vasomotors to stomach. Give a strong inhibitory treatment if hemorrhage develops at same time give strong stimulation at fourth and fifth dorsals the center for superficial circulation.

(8) Do not give patients stimulants unless they show symptoms of collapse and are weak. In this case the best stimulant is brandy diluted with water. If patient is not weak but nauseated control by inhibitory treatment to the vagus nerve also by giving patient some solid food. Ginger ale may also be given also sea biscuits.

(9) In case of severe intestinal hemorrhage apply strong inhibition to 11-12 dorsals on both sides. Continue this inhibition through lumbar and sacral regions and at same time give strong inhibition in the lower cervical region to control vertebrae circulation. Do this at seventh cervical and first dorsal, press at back of transverse processes pushing the head back against pressure.

Intestines - The small intestine gives a typical peristaltic movement and the large intestine an inhibited or restrained peristalsis, much slower. Stimulation of the tenth cranial nerve increases the peristaltic movement of the small intestine either (a) through the mesenteric plexus or (b) through contraction of the stomach chemically, stimulates the intestines mechanically. The splanchnic nerves are visceroinhibitory to the small intestines, only however so as the circulation is normal. If the blood becomes venous stimulation of the splanchnics increase peristalsis. If arterial blood is supplied freely to the intestines visceroinhibitory action continues therefore stimulation of the splanchnics in the lower dorsal area gives an inhibitory effect on the intestines. The splanchnics also contain visceromotor fibers and vasomotors to the intestines, if stimulated all intestinal blood vessels contract, if inhibited they dilate. The nervi irrigantes in relation to the lumbo-sacral field when stimulated cause contraction of the longitudinal fibers of the rectum. Stimulation of the hypogastric plexus inhibits the longitudinal fibers of the rectum as stimulation of the nervi irrigantes inhibits the circular fibers. In relation to the bladder when the nervi irrigantes when stimulated produces dilation.

Acute Diarrhoea - This is not a disease but a symptom representing or disturbance or disorder of the intestines with an increased frequency of movement due to increased peristalsis. It may or may not result in diffused inflammation involving the entire intestinal tract. Here we must distinguish between the simple and the catarrhal type. Most common seat of inflammation is in the small intestine and upper part of large intestine. There are two types of the catarrhal form - (1) Nervous. Here we have increased peristalsis due to some irritation of the nerve mechanism through fright or hysteria, motion, toxic condition, etc. We have here vaso-motor paralysis of the intestinal blood vessels producing stasis and effusion of the serum resulting in either simple or catarrhal type of diarrhoea. (2) Catarrhal. Found in majority of cases. The cause may be primary, the direct effect of exposure to cold, irritation of undigested food, action of bacteria, or secondarily following other lesions, e.g., typhoid, dysentery, Bright's disease and gastric ulcer, which is very common. In some cases diarrhoea is produced by active poisons, e.g., mercury, arsenic and toxic ptomaines. Acute diarrhoea is most commonly produced by eating unripe fruit, overeating, changes of water, sudden changes in the weather, changes in the quantity and quality of the bile. The lesions found are in the lower dorsal and lumbar field and lower ribs and muscles affecting the tenth nerve. Lesions to the splanchnics affecting the vaso-motor nerves, motor and secretory fibers, particularly the left side being involved.

Pathology - (1) Hyperemia, venous stasis in mucous membrane, producing red or pale mucous membrane; (2) covered over with mucoid substance, this being due to stasis; (3) sometimes abscess formation takes place with or without rupture.

Symptoms - Increased movements of the bowels carries with the cause. (4) nature of disease changes in catarrhal type, very frequently thin, watery, yellowish or greenish color mixed with undigested food. In simple catarrhal type the color is light and substance is increased. In dyspeptic type of diarrhoea large masses of undigested food with a large amount of fluid representing serum. In carcinoma and sarcoma the diarrhoeic stools are bloody or typical coffee grounds. In ulceration of the intestines black with severe pain sharp and cutting distention of the colon rumbling noises accompanied by tenesmus. (5) If the evacuations are frequent, in some cases producing intestinal prolapse. (6) If excessive, there is high temperature with prostration as a general rule. If much undigested food is evacuated you locate the disease in the upper part of the intestinal tract. If thin and watery in the lower part of the intestines and lesions can be found in the intestinal field of the spine and corresponding ribs.

Treatment - (1) Restrict diet and eliminate all improper food and water. If irritation is in lower intestine irrigate freely with hot water and give patient a complete rest in bed.

(2) Examine spine carefully especially on left side from fifth dorsal down. Look for displaced vertebrae and cold spots along the spine which interfere with vasomotion also look to the atlas and axis and lower cervical region, third and fourth interspaces on the left side. These interferences produce an increased

blood supply through irritation of the motor nerves and producing peristalsis, increasing activity of Meisner's ganglia produced through the sympathetic giving increase of intestinal secretion.

(3) Direct local treatment over abdomen anterior to relax tissues, free circulation and remove irritation through the mesenteric field. Keep the liver active so as to keep out the toxic and septic elements and prevent decomposition.

(4) Treat the vagi to control the blood supply and nerve supply.

(5) The alkaline element generally prevails. Pressure below the solar plexus will tend to reverse peristalsis to that extent check diarrhoea from the alkaline side. Pressure along the first and second dorsal will help to control the alkaline reaction.

(6) Treat around from the sigmoid to the ilio-caecal area.

(7) If there is pain, gently press the knee at the back, then knead the bowels from left to right and give shaking or vibration over the intestines simultaneously with patient in sitting posture.

(8) Draw arms slowly above head still sitting pressing slightly at fourth and fifth dorsal while lowering arms of patient backward.

(9) Manipulate muscles on both sides of lumbar region of the spine to free contraction and tenderness. Pull the muscles out and up.

(10) If this does not relieve the patient use the fingers to press tightly on either side of the spine from second to twelfth dorsal.

Chronic Diarrhoea - Here we have a chronic inflammation of the mucous membrane and sometimes ulceration due to continued chronic inflammation of the intestines or secondary to ulceration elsewhere and dysentery, syphilis, tuberculosis, cancer, Bright's disease or any obstruction to the portal circulation. It is a symptomatic condition not a disease. Lesions are found in the lower dorsal and lower ribs.

Pathology - (1) The condition is followed by a brownish condition of the mucous membrane, this being hard, due to continued hyperemia and exudation, the exudated fluid coagulating and becoming a hard mass. In connection with the mucus coat sometimes the mucous membrane atrophies and there is destruction of the glands. In some cases this is due to ulceration the ulcer being found in the ilium or cecum.

In chronic diarrhoea we have the alternation of constipation and diarrhoea, the evacuations being mixed with mucus and in some cases the mucous membrane sheds.

Treatment - Here we have chronic inflammation with increased peristalsis. Typical lesions are posterior or lateral curve of last two dorsal and first three lumbar. Another typical lesion is subluxation of tenth to twelfth ribs, and slight twisting of second to fourth lumbar.

(1) Correction of lesions and treatment of splanchnics and solar plexus, especially in vaso and visceromotor types. The visceral movements of intestines depends on amount of blood in

muscular and mucous walls of the intestines and this is regulated by the splanchnic nerves.

(2) Attend to those disturbances in the form of lesions of spine and ribs that effect plexuses. The lesions in this case are rigidity of muscles in dorsal area.

(3) Look closely to condition of innominate which affect sceral nerves. These nerves supply motor fibers to longitudinal coat and inhibitory fibers to circular coat of intestines.

(4) Give good spinal treatment from cervical down, paying attention to left side.

(5) Strong inhibition in lower dorsal and upper lumbar areas on left side to control pain.

(6) Apply vibration over intestines upwards from sigmoid, followed by extension and rotation of head and neck and spine to free muscles and ligaments.

(7) Manipulate liver lightly to get bile excretion and secretion. If bile is not excreted give stimulating treatment at 8-9 dorsals, on right side.

(8) In case of fatty diarrhoea give specific treatment to pancreas and spleen.

(9) In case of intense pain in diarrhoea give strong inhibitory pressure through entire splanchnic area from below upward. Apply at same time pressure from below upward over the lower abdominal quadrant with patient on back, limbs flexed and thus manipulate the abdominal faecia.

(10) Diet. Have patient use easily digested food. If necessary use predigested food. Also have patient use intestinal irrigation.

Intestinal Indigestion - Sometimes called dyspeptic diarrhoea. Generally due to some change in intestinal secretion or liver or pancreatic secretion. This is always accompanied by stomach indigestion which represents a reaction. In acute form the diarrhoea is caused by undigested food with symptoms of flatulence, intestinal colic and sometimes marked febrile temperature periodically. In mild for the symptoms are loss of appetite, epigastric pain, coating of tongue, clay color and evacuation, sometimes black.

In chronic form pain is found three or four hours after meal, pain being felt first in liver area, then under sternum or in the umbilical region, the pain being dull with a sense of fullness and weight. Here there is alternation of constipation and diarrhoea. In severe chronic cases there is mental depression, intense headache with vertigo, pain in back beginning in lower dorsal, extending downwards along the back to the limbs. There is sometimes collapse due to absorption of toxins, palpitation of the heart, cold sweats and cold extremities. This is found more frequently in children and due to improper diet. It is also found in children with rickets and tuberculosis, also in those living under unhygienic condition.

Pathology - The mucous membrane becomes swollen, lymphatic glands enlarged, exudation of fluid in intestine. The child is restless at night with frequent colic, nausea and vomiting. In some cases periodic rise in temperature with vomiting and diarrhoea are found.

Treatment - Dyspepsia represents an incomplete action of the juices on the food, consequently there is a failure to produce chyme. (1) The first point in treatment is to stimulate the great vasomotor area by relaxation of the muscles of the neck and upper part of spine by raising the clavicles followed by articulating the upper dorsal vertebrae.

(2) Manipulate directly over the liver and stomach.

(3) Raise and articulate the ribs particularly in connection with the respiratory action.

(4) If diarrhoea is present give the treatment as before.

(5) If there is intense pain raise the arms above the head while you inhibit in the splanchnic area on the right side.

(6) Make patient partake of solid food only.

(7) Irrigation is advisable every second or third day before bedtime. In case of a child, keep it warm and give daily tepid water bath with tepid irrigation of large intestine. Give sterilized milk.

(8) Treat abdomen lightly also lower dorsal and lumbar areas every day and articulate spine upwards from lumbar region.

Intestinal Catarrh - This is catarrhal inflammation due to (1) exposure to cold and dampness; (2) it is also produced by mechanical or chemical conditions, interfering with the blood supply to the mucous membrane of the intestine; (3) Among the exciting causes are unripe fruit, impure water, unsound meat, toxic substances produced by putrid food, extension of inflammation from some other part as cancer, ulcers, etc., also diseases of the heart and spleen causing congestion of blood.

The symptoms differ in the different types which are (1) colic. Here pain radiates around umbilical area, frequent evacuation and in the duodinal inflammation there is jaundice produced by the biliary ducts. (1) In the caecal type, the pain is associated with the right lower quadrant of abdomen, there is great tenderness and dullness and is distinguished from appendicitis by the fact that the pain in this case is always continued diffuse.

(3) Colitis. Here the inflammation and pain follow around the entire colon. (4) Proctitis. In this case the pain is limited to rectum or sigmoid flexure in the lower Half quadrant and there is a tumorous condition of the sigmoid flexure region and the evacuations are small and are mucous or bloody or both. Arsenical poisoning frequently gives symptoms similar to these but in addition there is vomiting and rapid collapse of the patient.

In children we get two types of intestinal catarrh. (1) Cholera Infantum. Here we have an acute catarrhal inflammation of the mucous membrane of the stomach and intestines with an underlying disturbance of the sympathetic system. This is usually found during the first dentition particularly in extreme hot weather or changes of weather. It is found associated with bad food and bad hygiene, especially in children with tendency to rickets.

The symptoms are very much the same as in gastritis except that the evacuations are serous, these taking place very much the

patient is liable to sudden collapse or convulsions due to the intoxication of the sympathetic nervous system. The Cholera Infantum comes on suddenly with persistent vomiting aggravated by taking food or water. There is constant diarrhoea for 24 hours or more after which the disease is typical cholera infantum. The evacuation become yellow in color and serous in their nature. Vomiting persists during the choleric stage and at first there is colicky pain followed by slight tenesmus with distension of the abdomen. Following this there is abdominal retraction with prolapse of the rectum due to excessive relaxation of the rectal muscles. Skin is hot and dry, patient restless, there is febrile temperature, pulse very rapid. There is great prostration of patient, eyes become swollen with dark circles around them, the fontenels depressed, the forehead drawn and sometimes wrinkled. Convulsions are frequently found at this stage, the child passing into stupor and coma. If the child lives there is generally emaciation and that is a good sign. Frequent complication of cholera infantum is bronchial pneumonia.

(2) The second childhood type is Enteric Colic - enteric fever, or enterocolitis. Here the ileum and colon are involved. Found in warm weather, especially in bottle fed children from six to years of age.

Pathology. (1) The mucous membrane is congested and swollen, (2) the glands are swollen and sometimes ulcerate, ulceration extending to the mucous coat, the muscular and mucous coat sloughing.

The lesions are found from tenth dorsal to fourth lumbar. The evacuations pass through two stages - (1) The yellow stage, when the bile element prevails; (2) The green stage. (3) If the condition keeps up the green changes to bloody and mucous evacuation. This is the stage of sloughing and shedding of the mucous membrane.

Vomiting is present at intervals but it is not persistent as in cholera infantum. The abdomen is extended distended and tender along colon. Favorable cases are those in which pain and diarrhoea are persistent. In fatal cases the child gradually emaciates and collapses.

Treatment - This is similar to that of intestinal indigestion.

(1) If case is that of a child keep it warm and give daily tepid bath with tepid irrigation and sterilized milk.

(2) Give general treatment to abdomen, lower dorsal and lumbar regions lightly every day.

(3) Give general treatment to relax muscles particularly to tenth dorsal and from there down to the lumbar.

(4) Treat tenth cranial nerve in the neck by rotation and articulation of cervicals, the object being to get at vaso-motor dilator function of the tenth cranial nerve. Along with this treatment give good treatment to extend the spine.

(5) Treat diarrhoea and constipation if present as indicated in these conditions.

(6) Give inhibition at fourth dorsal down to and through ninth dorsal, raising arms of patient above head and at same time making patient breathe deeply and freely.

(7) Apply pressure on either side of spinous processes in lumbo-sacral region pulling limbs backward at same time.

In Cholera Infantum (1) give strong inhibitory treatment in lower dorsal and lumbar region. The object being to stretch the abdominal muscles and reach the mesenteric plexus. Give light pressure and vibration over abdomen.

(2) Give vasomotor treatment in cervical region.

(3) Raise arms gently and apply pressure through dorsals on left side especially.

(4) Give circulatory treatment and attend to kidneys and skin, that is lower cervical and lower dorsal and upper lumbar.

(5) In case of sudden collapse put child into hot bath and then wrap it up in hot blanket. If there is no collapse give child cool bath at same time using warm water enema.

(6) In form of diet give child sterilized milk in small quantities and frequently, peptonized beef juice, egg albumen in water. Give the last frequently in place of water. Give child plenty of fresh air, letting it sleep out of doors if possible.

Cholera Morbus - This is an acute intestinal catarrh coming on suddenly with very intense abdominal pain. It is diarrhoea of the purgative type. There is intense inflammation of the mucous membrane of the stomach and intestines which is produced by toxic irritation. Found principally in cold weather. The mucous membrane becomes pale due to the anemic state of the blood. The venous blood condition causing cramping pain beginning in stomach and extending to intestines and down to lower limbs. The evacuations are watery. Among other symptoms are intense thirst, high temperature, great prostration and loss of strength and rapidly progressive emaciation. The condition we have to deal with here is an uncontrollable peristaltic action. This is due to irritation of the intestinal mucous membrane.

The first point in attempting to control the intestinal peristalsis is to coordinate the two great nerve forces. This is done at the right tenth cranial and the left side of the splanchnic system. (a) Apply steady pressure over the vagus nerve in the neck; (b) steady pressure at fourth to sixth dorsals on right side - sympathetic side of tenth cranial - (c) similar pressure in the region of the greater splanchnic nerve on left side, continuing down to the lower splanchnic regions.

(2) Apply light inhibitory pressure over umbilical region gradually increasing the pressure to check the pain.

(3) Give strong inhibitory treatment in the suboccipital region and at fourth and fifth dorsals on right side to check the vomiting.

(4) If there is acute diarrhoea inhibit strongly through the splanchnic region.

(5) If there is cramping pain extending down to lower limb inhibit strongly over sacrum and over popliteal space.

(6) Stimulate rhythm of heart and lungs at fourth and fifth dorsal by articulation.

(7) In aggravated cases use hot fomentations over abdomen and irrigate lower part of large intestines with hot water.

(8) Diet. Give the patient milk, boiled and crisp toast in connection with the milk.

Intestinal Colic - Here we have a symptomatic disease that may be produced by indigestion in the intestines differing from intestinal indigestion in the fact that there is sudden paroxysmal pain produced by the sudden contraction of the muscular coat of the intestines, i.e., nerve pain. The pain always starts around the umbilicus sometimes patient gets a feeling as if the umbilicus was being pushed out.

The lesions are found in connection with the splanchnics, i.e., visceromotor. These lesions produce by reaction an irritation of (a) the sensory nerves through the intestines or (b) irritation of the inhibitory or (c) irritation of the vaso-motor nerve supply through the intestines. The exciting causes are indigestible food, toxic substances, gases, fecal impaction, the presence of foreign bodies in the intestines, an abnormal quantity of bile excreted into and retained in the intestine. Sometimes it is found as a reflex from the liver, uterus, spleen or secondary to such conditions as local poisoning, locomotor ataxia, syphilis and hysteria.

Symptoms - (1) Begins with severe paroxysmal pains coming on very suddenly, the pain starting around the umbilicus and radiating around the abdomen. The pain is cutting, causing distention of the abdomen.

(2) The reaction of the spini in the organism is making the patient restless, i.e., reacting on the entire nervous system.

(3) The surface and extremities of the body are cold and there is a weak heart and pulse action.

In the Lead Colic the skin becomes reddish in color and the abdomen instead of being distended is retracted.

In the Biliary Colic the pain starts in the liver region radiates toward the spine and then passes to the right shoulder.

In Nephritis Colic the pain radiates downward along the path of the ureter and there is painful retraction in the bladder region, the pain extending down along the iliac region.

In Uterine Colic pain found in the lower pelvis, the pain radiating between the uterus and the ovaries or vice versa and connecting with the ligaments.

Treatment - The condition here is aggravated peristalsis.

(1) The first point is to relieve the pain by strong inhibition through the splanchnic area.

(2) Look to the direct lesion which is producing the irritation, e.g., contracted muscles if the duodenum is involved, from the fifth dorsal down, if jejunum is involved from tenth to eleventh, ilium 12. dorsal, colon 3.-5. lumbar. After reducing the muscular contractions apply strong inhibition in the same region to affect the sensory and vaso-motor irritation.

(3) Local manipulation to the abdomen to relieve the pressure in connection with the mesenteric blood circulation. It will also promote peristalsis.

(4) If there is neuralgic condition of the intestine apply inhibition over seat of pain.

(5) If the pain persists stimulate the right vagus and inhibit the left splanchnics.

(6) If there is flatulence give direct inhibition over solar plexus.

(7) If intestinal colic still continues attempt to articulate lower dorsals and to move and raise lower ribs and stimulate vasomotor action of the spine.

Ulcer, cancer, tuberculosis and membranous enteritis. - The most common type of ulcer is ulceration of the duodenum, found principally in the young male subject, particularly in cases of anemic constitution or in rickets, The condition frequently follows erysipelas and ulcers in other portions of the body, infection being conveyed by the blood.

In typical cases the starting point of pain is found below the ensiform cartilage, radiating toward the pyloric orifice. The pain is found after eating and is relieved by vomiting. Hemorrhage is another of the common conditions, blood being mixed with the vomited matter and the feces being black and tarry. The next in frequency is a general ulceration of the intestines due to infection following pyemia.

Sometimes secondary to typhoid fever, t. b., localized in abdominal field, typhilitis, pain and tenderness being found along the colon. This condition of general intestinal irritation is found principally in connection with bad hygiene. It also follows scurvy and Bright's disease. There are three premonitory symptoms, viz., (1) intense diarrhoea, (2) continued intestinal hemorrhage; (3) persistent pain localized in colon.

In tuberculosis of the intestines the pain is secondary to the chronic tuberculosis condition of the primary and the constitutional type. Among the symptoms we have (1) diarrhoea; (2) emaciation, anemia, febrile temperature; (3) abdominal distress and enlargement of the mesenteric glands. The origin of the nodular tuberculosis is from infection.

Cancer of the intestine. This is usually found late in life with emaciation which is gradual and the only symptoms are: (1) emaciation, then symptoms of obstruction due to tumorous growth. Sometimes the growth can be palpated through the abdominal wall after washing out intestines. If it is localized in the lower colon there will be pain in the sacral region, if in the sigmoid flexure or cecum there will be a tumor on the left to right iliac region and pain localized in the iliac region. Another symptom is chronic constipation, with difficult defecation. Remember the superficial evidence you have in the blood condition, small bright red spots or more properly cysts. Also make blood test in cancer. This is the disintegration of the blood and the tendency to the abnormal formation of these little sacs.

Membranous enteritis. Here we have a chronic form of colitis, inflammation of the mucous membrane or lining of the intestines with a whitish gray membrane growing on the surface of the m. m. or adherent to the intestinal follicles. This membrane is really a type of that which forms in croup. Among the symptoms the most marked are (1) severe paroxysmal pain along the umbilicus; (2) with distension of the abdomen and great tenderness in the abdomen. The paroxysms usually last about one half hour followed by the discharge of loose masses of mucous membrane and sometimes intestinal casts. Along with this discharge there is intense tenesmus extending into colon, the feeling of rawness in the intestines after discharge. This discharge is found in female sex especially in neurotic and hysterical patients where there is a working of the nervous force and a consequent malnutrition of the system in general.

Cramps in the Intestines Caused by too rapid peristaltic action of intestines, one fold being thrown over another causing a local spasm of a particular part of intestine. The cause is (a) local irritation or inhibition due to some (b) lesion.

Intestinal hemorrhage is due to obstructed circulation especially in the portal veins secondary to diseases of the heart, lungs or liver. The causes are traumatism, degeneration or erosion or cancer or ulcer of the intestine, derangement of the menstrual condition, hemorrhoids extending upward along the colon, aneurism of the superior mesenteric artery, embolism, lesions in the vasomotor area of the intestines.

Symptoms are fainting, pallor, slight rigor, vertigo associated with obstruction and hemorrhage. If the hemorrhage is in the upper part the blood is dark and mixed with intestinal contents, if in the lower part the blood is red, liquid and usually preceded by a local colic.

Treatment - In ulcer, cancer and tuberculosis remember that the main point is the degeneration of the system and particularly the blood, therefore - (1) the main point in the treatment is two-fold - (a) Thorough elimination. The basis of these conditions is the accumulation of waste matter in the system. (b) Stimulate thoroughly the blood forming organs.

(2) Give the patient treatment to control the pain. Keep up periodicity of these treatments.

(3) Try to control the hemorrhage by inhibition in the vasomotor area - 10-12 dorsal for the intestines.

(4) Stimulate action of liver so as to get the antiseptic properties of the bile.

In Membranous Enteritis - The main point is to treat from the standpoint of the diphtheritic croupous membranous formation, i.e., abnormal secretion. (1) Get complete control of the vasomotor system by rhythmic treatment in the great vasomotor area and the splanchnics of the intestines.

(2) Give strong inhibitory pressure in the dorsal region of the spine for pain, treat downward.

(4) With patient on side or back, use the lower limbs as a lever while you apply strong inhibitory pressure in the lumbar spine.

(5) If the pain persists apply hot fomentations externally and hot irrigations internally.

(6) Give patient warm milk to drink. Milk is the best thing to use in cases of mucous formation in the stomach or intestines.

(7) Give the patient diet that will be absorbed entirely in connection with the stomach, a predigested diet is best.

Intestinal Obstruction - Here we have a sudden or gradual closure of the intestinal canal which may be either acute or chronic.

(a) It is sometimes the result of diseases or conditions outside of the intestine, e.g., secondary to tumor in the uterus or pelvic field, causing pressure which produces obstruction. Sometimes there is a gradual development of the obstruction, in case of hernial bands. In some cases these represent remnants of fetal structures.

(b) Sometimes the obstruction is the result of a condition within the intestine, e.g., cancer, ulcer, syphilitic or tubercular condition in the intestinal wall, accumulation of iron, feces or of foreign bodies.

In diagnosis it is necessary to find out when and how it comes on and the exact seat or location of it. (1) Principal symptom is constipation. There is also intense pain at point of obstruction, (2) increased peristaltic action above the point of obstruction, (3) the temperature is characteristic. First there is a rise followed by subnormal temperature, accompanied by rapid pulse, extremities are cold, respiration rapid.

In chronic cases there is chronic constipation, intermittent pain at point of obstruction, slight vomiting and tenesmus of the lower portion of intestines.

The cause of intestinal obstruction depends first on the age of the patient. In early life we get intersusception, in adult life we get volvulus, obstruction due to gall stones. In intersusception we get a history of peritonitis. In volvulus a history of constipation without peritonitis. In strangulation we get an early paroxysm of pain, in intersusception slight pain. Constipation continues as a symptom in all cases except intersusception.

Type I Strangulation - This type is either internal or external and is associated with acute obstruction or is due to a structure. Inflammation produces the thickening of the intestine in secondarily bands or some fetal remnants act as a cord entangling the intestines. Sometimes the intestine is adherent to the abdominal wall, in other cases it becomes twisted upon itself forming a loop or rings and become knotted. The particular portions of the intestines involved are the duodenum and jejunum. In other cases there are peritoneal pouches formed and the intestines get into them. In other cases a real hernia strangulation is due to the obstructions of the circulation of the blood and cutting off peristaltic action. In some cases a stoppage of the circulation causes gangrene.

Type II Intersusception or intestinal invagination. The great danger in this case is that one part of the intestine slips into or over another part. It may be in either the large or small intestine, one very common type is that involving the part just above the sigmoid flexure. It is found principally in children and in those grown up people whose intestines are semi-paralyzed. The upper part of the intestines is thrown down over the lower part. It is also found secondary to intestinal prolapse, in cases of spasm of the intestines and is most common in cases where one part is contracted and the other dilated due to irregular peristalsis. This is due to incoordination of the nerve supply. It is found usually at the lower part of the ilium, caecum and rectum.

Following intersusception there is secondarily inflammation, adhesions, necrosis and gangrene or death of tissues. Sometimes there is spontaneous correction of the intersusception in connection with the colicky pain. Among the symptoms are diarrhoea, followed by constipation, tenesmus, vomiting, after taking food, pain at the point of intussusception, appearance of sausage shaped tumor in that section of the abdomen.

Type III Volvulus - This is a twisting of the intestine and is found in the male sex between the ages of thirty and forty years. It is most commonly found in the region of the sigmoid. It is sometimes congenital where the colon is narrowed, dragging taking place, especially accompanied by irregular peristalsis, causing

twisting and knotting of the intestine. The cause of volvulus is irregular peristalsis.

The symptoms are vernicular movements at point of volvulus. In most cases it is an axial twist, the other symptoms are those of acute obstruction.

Type IV Stricture - It is always of the tumor type. These are found in the female usually in the large intestines at the left iliac fossa. The stricture is generally congenital in duodenum. The tumor type usually originate is ulcer producing a thickening of the intestine and new growth taking place around the scar.

Type V Is due to abnormal accumulation of material in the intestines, such as gall stones. Those usually lodge in the ilio-caecal region. We also find fecal impactions in the lower part of the large intestines, due to paralysis of the intestine. In differentiating intestinal obstruction we must distinguish it from appendicitis, typhilitis, etc., differentiate the former from its history, location or obstruction and pain. Distinguish the intestinal obstruction from peritonitis, there is a history in peritonitis of well marked febrile temperature, diffuse tenderness, no vomiting. In appendicitis there is diffuse pain becoming localized at McBurney's point, vomiting, sub-normal temperature, localized swelling with change in percussion note from tympanic to dull.

Treatment - The cause of the obstruction is an interference with the nerve force to the intestine, resulting in (a) irregular peristalsis; (b) suspended peristaltic paralysis. This interference may be caused by spinal lesions, twisting of the intestines, over-active peristalsis. The starting point of all obstruction is a neurosis of intestine. The main points in the treatments are (1) Palliate the pain, treat the pain by strong inhibition in the splanchnic area, 9-12 dorsal, on both sides.

(2) Strong inhibition over the solar plexus followed by deep manipulations over the abdominal muscles from below upward.

(3) With patient on side stretch the abdominal muscles, by giving the diagonal treatment.

(4) Vibrate over the abdominal area of the stricture and with light kneading treatment over the colon from right to left.

(5) Apply extension to the spine.

(6) Irrigate the intestine, using hot normal salt solution or hot oil.

(7) Strangulation treatment. Make an attempt to reduce the hernia. Put the patient in the same position as in irrigation. Flex the limbs on the abdomen and manipulate the abdominal muscles from the crest of the ilium upward. Follow this by putting the limb not affected on the table, with other limb flexed use the fingers to make strong pressure upward over the seat of the hernia. First exaggerate by movement of fingers and then pull in the opposite direction right over the hernia. Also stimulate strongly in the lumbar region on the affected side. If this treatment is not enough relax the abdominal muscles and apply strong inhibitory pressure in the lumbar and sacral regions, then take the limbs on the affected side and flex on the abdomen as far as you can push it. Then give a sudden jerking movement of limb downward while applying pressure over the intestinal seat of the hernia.

Intususception treatment - (1) Place patient in a position with head and thorax pointing downward. Irrigate the intestines with tepid salt solution, sometimes milk is used as a solvent for the mucous membrane of the intestines and is used frequently in cases of tapeworm, etc.

(2) Manipulate downward from point of invagination holding with the fingers above the invagination solid and firm with the other hand. When you have manipulated the lower end of the invagination, place the other hand in close to the spine corresponding to the point of obstruction. Stimulate strongly at that special point and then inhibit there, while doing this stimulate gently with the other hand upward along the path of the invagination.

(3) Vibrate and then manipulate deeply around the seat of invagination. Follow this by placing one hand tightly below the lower end of the invagination and using fingers and thumbs of the other hand to pull the intestine upward and away from the first hand.

(4) Stimulate strongly in the dorsal and lumbar regions downward also apply extension to the spine.

Volvulus treatment - (1) Give general treatment especially in connection with extension of the spine and direct manipulation over part involved to straighten out the knotted part pulling the intestine up and away from the knotted and twisted portion. Use same treatment as in the other type, holding below the knot. Stretching of the spine and abdominal area with patient on face, elevating limbs backward or by diagonal treatment.

In Stricture and Adhesion of intestines - (1) Apply local vibration to relax and break up the adhesions, use along with this the heat persistently.

(2) Have patient use hot water to drink and the use of hot water enemas. While patient is taking these give good treatment to the spine in area corresponding to the stricture.

(3) Give patient treatment for nausea and vomiting.

(4) Give strong stimulation to the spinal nerves corresponding to the areas involved. Strong inhibition to the tenth cranial nerve strongest point for stimulation is at atlas and axis.

In the accumulation of abnormal contents or matter in the intestines - First point is a strong liver treatment to cause the secretion and excretion of bile. (2) Vibration followed by kneading first lightly and then deeply and over the impacted area. (3) Give treatment to equalize the circulation of the blood especially in connection with the lower extremities. (4) Hot application of oil both internal and external and application of dry heat externally. (5) In case of rigidity of the adherent substance or the field of adhesion use some means to overcome rigidity. One of the best means is the use of lobelia seeds.

Constipation - Here we have a condition of fecal retention or suppression of fecal elements by absorption. It may be caused by some alteration or diminution of intestinal secretion, as in fevers, except where catarrh is present. In the diminished intestinal secretion there is usually an increased perspiration, i.e., an unbalance of the secretion. Constipation is worse and more aggravated in the summer for this reason. In other cases of constipation there is a diminished sensibility in connection with the sensory nerves from the intestines. This is the cause of habitual con-

stipation and explains why christian science folowers cure this type by the mental influence over the sensibilities.

We also find constipation due to habits acquired by the patient, it is sometimes due to pain associated with defecation, particularly in hemorrhoidal conditions and also in uterine and ovarian conditions. Among the other causes which can produce constipation are weakening of the abdominal muscles. In what is called the sedentary type of constipation we have a number of conditions combined. (1) Changes in secretions; (2) muscle impairment; (3) impairment of sensibility; (4) dietetic conditions.

Constipation is sometimes secondary to other conditions, e.g., anemia, chlorosis and a general congested condition causing deficient circulation through the abdominal muscles and causing atonic condition of these muscles, also in connection with peritonitis there is a paraesthetic condition of the intestines resulting in a general paresis, obstruction of the intestine, pain in connection with the hemorrhoidal states, we also find constipation in connection with acute or chronic diseases of the spinal cord, e.g., spinal meningitis, locomotor ataxia and a weakening of the muscles in obesity, excessive development of soft tissues in sacral field and abdominal cavity.

Among the lesions found are those involving the lower dorsal and lumbar vertebrae, these representing vasomotor and motor, lesions of the lower ribs producing vasodilation, also lesions affecting the vagus nerve, either vaso-dilation or visceromotion, also sacral lesions involving the nervi irrigantes which are of the dilator type, visceral.

Among the symptoms of constipation are (1) a diminished frequency of the movement of the bowels. (a) In the rectum we find the sensation of irritation resulting in pain. (b) we have distension of the abdomen; (c) the local symptoms are limited to the rectum and abdomen.

In the acute case of constipation there is a periodical diarrhoea. In chronic cases the colon is generally thickened and enlarged, sometimes with fecal impaction and sometimes with congestion of the walls of the intestine. In most cases of constipation the patient is nervous, neurasthenic and neurotic, the symptoms being headache, loss of appetite, vertigo, fecal odor of breath. In other cases we find hemorrhoids, ulceration and hemorrhoidal pains in the back, radiating to the sacrum and upward along nervi irrigantes.

In children constipation is due to errors in diet although in some cases it is hereditary. In the hereditary or congenital cases there is (1) usually congestion and rigidity of the large intestine with resultant paresis; (2) another symptom is dilation of the intestine and abdomen due to gas formation and accumulation of materials in the intestine; (3) Ulceration is also frequent in constipation involving the caecum and rectum. On palpation the colon is tendered and there is either congestive enlargement of the intestine or else fecal accumulation sometimes becoming fluid.

Treatment - Here we have a neurosis in connection with the nerve supply in lower dorsal and lumbar and lower ribs involving the sympathetics to the intestines caused by partial or complete cutting off of the nerves resulting in paresis or semi paresis of

the intestine, local field of the paresis. The muscles involved are the intercostals and spinal. The osseous and ligamentous lesions are from the fifth dorsal down, principally on the left side, also lesions involving the last three ribs on left side especially.

The first point in treatment is the relaxation of the muscles, the freeing of the ribs and the articulation of the vertebrae in the intestinal area of the spine so as to free the nerve and blood supply.

(2) Pay attention to the original cause - diet, neurotic or neurasthenic conditions, habits, etc.

(3) Also pay particular attention to the liver, spleen and kidneys.

(4) Regularity in diet, exercise of patient and regularity in the defecation process. Give coarser foods.

(5) Free the muscles along the spine to cause relaxation, paying attention to the muscles in the interscapular area, also lumbar and sacral regions. Treat either on face or back, using arms as a lever. Treat muscles upward in case of scanty type.

(6) Look to condition of ribs, twisting or turning, especially on the left side.

(7) Correct lesions found, particularly those on the right side in upper cervical region involving the tenth cranial nerve, because it holds the balance of peristalsis.

(8) Give direct kneading treatment to intestines beginning on the right side and passing toward the sigmoid, except in motor type beginning at sigmoid, then knead the small intestines from the pyloric orifice from above downward and follow this by light vibration.

(9) Give direct treatment to the liver in the form of friction over the lower ribs, direct rhythmic treatment to the liver beneath the cartilages of the ribs and direct treatment to the gall bladder. At same time give direct treatment to the solar plexus.

(10) If there is anaesthesia of the rectum rectal dilation not oftener than once a week, dilate the rectal sphincters and at same time give strong stimulating treatment in the sacral region with the patient on face.

(11) In some cases you may find coccygeal displacements. In this case apply corrective treatment. In other cases the uterus is one of the causes of constipation, hence the treatment is to correct the uterine conditions.

(12) In all cases of constipation pull the intestines well up from the iliac fossa, particularly on the left side. This will stimulate strongly the peristaltic action. Along with this give vibratory treatment to the abdomen and spinal stimulation from the sacral region upward.

Intestinal Parasites - These are found principally in connection with improper food, the parasites passing into the alimentary canal with the food.

The first is tapeworm, *Taenia Solium*. The larvae in connection with this type is introduced in connection with the food or fluid which the patient takes, the parasite being developed within the intestines. It is found principally in connection with pork. This

type varies in length from two to four yards, having a very small head about the size of a pinhead type and suckers around the head, shaped in the form of a cup. The suckers are surrounded by hooklets forming a double row. The head is attached to the body by a very thin delicate neck, the body being divided in segments, each segment being both male and female. At the center of each segment is the ovarian region of the joint male and female body. The larvae develop into the adult size the 13. week.

The second type is the *tania sagginata*. This is the tape worm found in connection with beef and its length is about five or six yards, the head is larger, being about two inches in circumference and surrounding the head are four or multiple suckers without any hooklets. These are also divided in segments, male and female, the same as the other type, but the segments are much thicker and the ova much larger than the others.

The third type is the *tanea punctata*. This is a small tape worm, about 14 inches long. It has a small head with suckers, but no hooklets. It is developed from fish flesh.

These tape-worms are found in connection with unhealthy conditions of the stomach and intestines plus culture field. This unhealthy condition of the alimentary canal is chiefly a catarrhal condition and represents mucoid material, this and together with the use of impure or badly cooked food, represents the two conditions which are favorable to these tape-worm developments. The germs of these tape-worms are carried into the alimentary canal encapsulated in the food, the capsule is dissolved by acid of the stomach, the ova or larvae then passing to the intestines and forming the embryo of the worm. Its development taking place in the alkaline medium of the intestines.

These parasites develop in connection with intestinal dyspepsia and continued catarrhal conditions and weakened and depleted conditions of the secretions.

Symptoms - (a) We have all symptoms of catarrh; (b) in addition persistent headache, associated with giddiness; (c) we also find abdominal colic, griping pain; (d) loss of appetite and emaciation; sometimes a nervous appetite; (e) nasal and anal itching; (f) among other symptoms are convulsions and grinding of teeth in children, delirium in adults, restlessness in sleep, sensation of cold, like cold water trickling down the spine.

Thread-worms. These are of different types. First we have the *Ascarides*. These are small round worms found in children. They are yellowish brown and very much like the earth-worm, pointed at the two ends. The male seven or eight inches while the female larger. These worms are always located in the small intestines, but sometimes getting into the stomach, bile duct, trachea and euatachain tube in spinal canal. Frequently there are no symptoms in the early stages. The earliest symptoms are intestinal colic, nausea and vomiting with excessive appetite and grinding of the teeth in sleep.

The second type is called *Oxyuric Vermicularis*. This is called the pin worm, is very small and pointed at one end, stubby at the other. This is usually found in the colon or rectum and found in children, especially in those who have had intestinal digestion.

Symptoms - are slight febrile temperature, periodic, loss of appetite, itching around the nose and mouth, white rings around the mouth, anemia and restlessness at night and symptoms of gastritis and enteritis, dreaming conditions, waking up at night in fright,

The next are the trachinae or trachinosis. This is an acute contagious disease caused by parasites from pork to man, in which gastritis and intestinal disturbances are found along with the following - (a) marked oedema of the eyelids, face and feet; (b) continued and excessive perspiration all over the body. These small pass through the intestinal wall and travel to the muscles, through lacteals and lymphatics to blood and muscle. In the muscle they become encysted and reproduce very quickly setting up changes in the muscles.

If they are very numerous we find symptoms such as vomiting, diarrhoea, abdominal pain, sleeplessness and great muscular rigidity. The rigidity gradually increases until the face, arms and feet become much swollen and hard, the respiratory muscles also hard and become infected. Following this there is profuse sweating, rapid heart action, febrile temperature, coma and death. This disease is considered incurable.

Treatment of all parasitic conditions - (1) Avoid the use of improperly cooked food and attend to the general health and hygienic condition of patient.

(2) Stimulate output of bile and secretion of intestines, stomach and salivary glands.

(3) Treat splanchnic area to the superior cervical ganglia of sympathetics.

(4) Do not give solid food under these conditions, boiled milk is especially good, helps to dissolve mucoid material and throw down the mucus in which the hooklets are imbedded.

(5) Treat the liver three times every day if possible for several days after which you should get action on the parasites and then give a stimulating treatment to start the peristalsis and diarrhoea.

(6) Give patient circulatory treatment after worms have been expelled and irrigation of stomach and intestines with hot normal salt solution.

(7) Give patient diet that is easily assimilated, predigested food may be given. Give hot water to drink.

In case of threadworms. (1) Give digestive system a rest for several days. During this time build it up by treating vasomotors, splanchnics and stimulation of the liver from the rhythmic side.

(2) Along with the liver treatment use hot water enemas and give patient hot water to drink, also lemon juice and stimulate diarrhoea.

In trichinosis. (1) Avoid fresh meats, especially pork.

(2) Irrigation of intestines antiseptically, best antiseptic here is sulpho-carbolates, this should be used frequently to prevent further development.

(3) Treat the liver rhythmically, same as before.

(4) If parasites have entered the muscles give local treatment to the muscles affected and keep them relaxed, also use hot fomentations or hot vapor baths or both.

(5) Following this stimulate general circulation, stimulate eliminating organs and lymphatics.

Appendicitis - Disease of middle life, between 15-30 years of age and is more common in the male. It is due to two facts -

(1) the appendix is larger in early life; (2) it has a very large nerve supply. It begins as a neurosis, involving the nerve supply to the appendix and lesions are found between 2-3 dorsals. Some say it is insufficient nerve supply, but it is opposite, over-sufficient nerve supply when established.

Pathology - (1) Inflammatory condition of appendix. The inflammation is not primary in the appendix, it extends to the glands of the appendix - Lueberkean glands; (2) This means that appendicitis begins as a secretory disturbance - the inflammation causing a lack of secretion and affecting peristalsis; appendicitis is either suspended or aggravated peristalsis. (3) The mucous wall of the appendix is thickened by granulation. It is here we get the types of appendicitis -

(a) Interstitial conditions develop secondary to catarrh in catarrhal constitutions;

(b) Lymphatic type, here there is an alteration in the lymphatic supply; so that the washing out is not complete or absent;

(c) Gangrenous type, here we have the perforating or ulcerative type. It may be due to traumatism. Lesions are found from 10-12 dorsal and 2-3 lumbar.

The appendix is a lymphatic organ, has more lymphatic fluid than any other part of the alimentary canal and with the lymphatic supply it has profuse blood supply. Why? Internal secretion organs starting point of function of appendix is general is from vaso-motor side, it is the terminal part of the large intestine central-ward. All forms of appendicitis represent two conditions - (1) an inflammatory condition and (2) a secretory condition. In the latter case it is vaso-motor.

Look for inflammation signs - (1) change in temperature; (2) diffuse pain; (3) followed by localized pain; (4) suppression of the secretory function.

Pus formation if condition continues occurs from leucocytes and lymphocytes. This can be aborted by giving treatment to the lymphatic circulation - articulation of lower dorsal and upper lumbar.

Presence of foreign bodies. This takes place when the appendix loses its peristaltic action, the contents of intestines falling down into appendix field.

Pain - (1) Diffusive;

(2) Localized pain passes from inflammatory stage to degenerative stage;

(3) Gripping pain with diarrhoea (good symptom);

(4) Traveling of pain away from McBerney's point up toward umbilicus, to spine, leg, psoas muscle.

Patient is restless, temperature irregular and the pulse low. Here there is danger of collapse and breaking of appendix may take place.

Pain passes to pelvic organs, tendency to incontinence of urine. Pain that accompanies sub-normal temperature passes gradually to stomach and causes vomiting and leads to collapse.

Treatment - Appendicitis, Typhlitis and Perityphlitis.

(1) Treat constipation. Use rectal irrigation or dilation.

(2) Low nutritive condition of intestine due to auto-intoxication, eliminate waste elements through lymphatic system.

(3) Alteration in peristalsis - aggravated peristalsis of appendix and peristalsis of large intestine is normal in appendicitis caused by blood conditions.

Cause - (1) lack of tonicity and (2) tension caused by sagging of intestine from hepatic flexure. This is caused by constipation.

Lesions - Lower ribs on right side, lower dorsal.

Specific treatment - (1) Relax muscles in dorsal, lumbar and sacral regions.

(2) Keep patient quiet as possible, treat with patient on back.

(3) Treat for constipation from secretory standpoint.

(4) Manipulate the intestine gently from the cecal valve to sigmoid flexure.

(5) Inhibit in lower dorsal and lumbar regions.

(6) Give strong vibratory stretching treatment or diagonal treatment between the ilium and the shoulder. If you get your patient between the second and third stages manipulate gently in this area. In connection with the manipulations use hot fomentations locally. If the pain is intense apply dry heat locally, or spine. If great and local increase in temperature apply an ice pack locally to dissipate the heat and then apply hot fomentations afterward. At the same time give vasomotor treatment in the spinal area. A lined poultice or lobelia seeds will relax the abdominal muscles if they are too sensitive for osteopathic manipulation.

(7) With patient on left side pull up the right arm and pull out the intestines gently from the right iliac fossa, follow this by gentle deep manipulation of muscles from lumbar region to spine down and upward over across crest of ilium.

(8) Stimulate the circulation of blood, beginning with vasomotor treatment and ending with superficial treatment at 4-5 dorsal.

(9) In appendicitis with perforation the symptoms are those of general appendicitis lasting for several days followed by sudden change or crisis in the symptomatology. Perforation may take place early or late in the course of appendicitis.

If early it is a result of a local peritonitis and abscess formation. In this case the symptoms are intense local pain from the beginning, the pain distending the abdomen and producing collapse of the patient very quickly.

When perforation takes place late in the disease the development of inflammation is gradual, extending either anterior or posterior. If it extends anterior there is perforation of the peritoneum, if posterior perforation into the connective tissue. In this case there may be no peritoneal perforation and no peritonitis.

In cases of perforation the whole appendix is enlarged and swollen like a tumor. There are three stages - (1) stage of rigidity, i.e., appendix and overlying tissues rigid; (2) followed by a soft soggy condition of the appendix and along with and following this

(3) Oedema of the skin and subcutaneous tissues and structures. If the condition goes on there is induration in connection with

the pelvic border towards the rectal region, i.e., rigidity courses to left iliac region and goes down into rectal field. This rigidity walls in the appendix by hard indurated substance developing gradually an abscess. The surface becomes first reddened then pointed in the abscess. At this stage febrile temperature becomes high and is associated with chills and sweats, followed by a fall to subnormal. At this stage there is intense diarrhoea.

In some cases ulcer or abscess does not develop locally in appendix, but travels upward along the colon in some cases as high as the diaphragm, passing into the pleura and affecting the lungs - emphysema. In other cases abscess travels down into rectum or bladder. In some cases the danger is that of gangrene development in which event the symptoms of appendicitis quickly pass away and the patient seems to be well but suddenly collapses.

Typhlitis - Here we have an inflammation of the cecum due to the accumulation of fecal matter or ulceration caused by infection. The condition may remain local or become general. In most cases the cause is pressure cutting off the nerve and blood supply as in constipation, the symptoms are pain in the right iliac region, mild febrile temperature, formation of the sausage-shaped tumor in this region.

Perityphlitis - symptoms are similar to those of typhlitis, except the tumor is larger, the pain radiating into the small intestine as well as around the colon.

Peritonitis - Inflammation of the peritoneum, acute or chronic. It is sometimes primary, but more commonly secondary to some other condition. Where it is primary it is due to exposure. Sometimes it is secondary to lesions found in the dorso-lumbar regions and disturbances of second to fourth ribs. Most frequently however it is secondary to some inflammatory condition of the intestines or to inflammation of the stomach or genito-urinary system. Sometimes it is secondary to inflammation of the liver, spleen, kidney, gall bladder, or to perforation of an organ which it covers. The most common exciting cause is appendicitis, next Bright's disease, rheumatism, scarlet fever, Pott's disease or septicemia. Sometimes it is secondary to inflammation of the pleura, the infection passing through the lymph system.

Pathology - (1) Inflammation of the peritoneum; (2) followed by exudation, either serous, sero-fibrinous or purulent.

Morbid anatomy changes - In the first stages the peritoneum is red and covered with a slimy mucous semi-fluid, in the later stages the exudate thickens and becomes a sticky fibrinous formation, leucocyte disintegration taking place and then there is adhesion of the peritoneum followed by ulcer or abscess formation. In the other cases the exudate is absorbed.

Symptoms - The first onset depends on the cause. The two great causative factors are perforation and infection. It comes on suddenly with a chill or rigor and followed by extreme abdominal pain. If it is at first local then general the pain rapidly diffuses over the whole abdomen and extending into limbs, with the limbs tightly flexed to relieve the tension. The location of pain depends

on the primary seat of infection. When the stomach is the primary factor pain begins in the back and shoulders extending around the thorax and then down. The abdomen is extremely sensitive. In some cases the diaphragm is pushed up and there is difficult respiration, irregular heart action. In other cases where the cause is pelvic there is painful micturition or interference with the liver and spleen due to misplacement of these organs. In all cases respiration is rapid and is found principally in the upper part of the thorax, coughing and speaking is painful, vomiting in connection with the stomach, tongue dry furred and cracked. After chill the temperature rises quickly to 105-106, in septic cases higher or it may fall to subnormal. Here the patient becomes restless and anxious, emaciation takes place rapidly, pulse is rapid and thready. In severe cases the patient collapse and there is intestinal and cerebral vomiting usually terminating in death, the cause being cardiac paralysis. If the condition continues and patient lives the peritoneal cavity is filled up with fluid. In the local type there are all the symptoms of limited inflammation. It comes on quickly in connection with perforation, the perforated area being the area for inflammation, tenderness and pain.

The chronic type of peritonitis. This is nearly always secondary to some abnormal growths or traumatism, pelvic disease, syphilis, scrofula. In this type the peritoneum and intestines become matted together, the adhesions being either local or general. The most general type is the formation of fibrous bands. In this cases there is a thickening and constriction of esentum. In localized peritonitis the symptoms are those of intestinal obstruction. In the diffused type the symptoms are those of acute peritonitis with acute paroxysmal pain. Along with this we have oedema and emaciation. The effusion may become sacculated forming a sac on either side.

In cancer of the peritoneum. Found in old people and secondary to cancer in some other part or organ. The main symptom is ascitis.

Tuberculosis of the peritoneum. Secondary to t.b., of other organs, or parts. The symptoms are slight febrile temperature, localized pain or tenderness, sometimes tumor formation, in some cases there is thickening of the intestinal walls and peritoneum.

Treatment - there are two conditions to be looked after - (1) the condition of lymphatics; (2) an effort to meet by treatment the arrest of the normal peritoneal secretion is condition to deal with. The inflammation results from impeded circulation and obstructed or arrested secretion causing a capillary congestion with resulting exudation and in some cases adhesion in chronic type.

The nerve supply to the peritoneum is from the lower intercostal and the upper lumbar nerves, the same nerve supply as we find in connection with the abdominal muscles. The abdominal sympathetics furnish vasomotors for the abdominal blood vessels and also the peritoneal blood vessels, solar plexus and greater splanchnics as the centers.

(1) Treat the vasomotor system so as to gain control of its function. Treat on side or back. Stimulate the great vasomotor area in the cervical region and articulate the ribs from 8. down.

(2) Strong inhibitory treatment from ninth to twelfth dorsal for pain.

(3) Begin at cecum and manipulate along path of colon, gradually increasing force of treatment, then vibrate gently over whole abdomen.

(4) Give gentle articulating treatment in neck and upper part of spine to control lymphatics in relation to local vasomotors. Along with this stimulate heart and lungs, e.g., inhibit in the superior cervical ganglion, region to check the impulses and at same time raise arm of patient above head while patient breathes heavy yet not too deeply.

(5) Gentle manipulation of abdominal walls. This is done by light pressure inhibitory, and by light moving pressure.

(6) Irrigation of intestines to remove all accumulations, to assist circulatory and lymphatic flow and get solvent action of secretion. Warm salt solution may be used.

(7) Follow this by treatment of vagus nerve, right, and left splanchnic nerves to equalize the nerve forces. At same time stimulate action of liver rhythmically so as to provide for the return blood of the portal circulation.

(8) Correct lesions that may be found and inhibit right pneumogastric nerve to check over-active peristalsis.

(9) Aggravated constipation is due to congestive pressure and oedema. Deal with this through the mesenteric blood field, i.e., lower splanchnic area.

(10) Relieve condition of hiccoughs often found in peritonitis by pressure downward on the phrenic nerve at angle between the posterior margin of sternomastoid muscle and upper border of clavicle. Also give strong inhibition at third to fifth cervicals.

(11) Keep patient in bed on back. Give no food for several days, after which use some predigested food.

In chronic peritonitis the first point is to deal with the condition which is primary the cause.

(2) To palliate vibrate over abdomen to break up adhesions and fibrous bands. Apply deep vibration and use dry heat freely. Use hot fomentations after the adhesive condition begins to break up.

(3) Stimulate the circulation by strong articulation in the splanchnic area. Give alternate stimulation and inhibition along dorsal and lumbar regions of the spine to reduce congestion and oedematous swelling.

(4) Direct treatment all through the splanchnic area in connection with direct treatment to keep the liver in active operation.

(5) Give patient nutritious diet of easily digested food avoiding starch and sugar to prevent fermentation and dilatation by gas formation.

Diseases of the Secretory System -

Salivary Glands - Here we find either an increase or a decrease in salivation. (1) Increase in all cases where there is an inflammatory condition; (2) except in those cases where we find high febrile temperature, in which cases there is a decrease in salivary secretion by reaction.

Saliva itself is a mixed fluid derived from the parotid, submaxillary, sublingual, mucous and submucous glands of the mouth.

In order to get saliva for examination wash the mouth with warm alkaline solution, then apply a dilute acid to the glands. This will cause the saliva to be secreted and you can collect it with a dropper.

The saliva is a colorless bluish liquid, slightly stringy on account of the mucous element in it. If the saliva is allowed to stand it will separate itself into two layers, semi-fluid above and a solid layer. Microscopic examination shows - (1) the presence of salivary corpuscles, larger and more glandular than leucocytes. (2) In diseases there are fungi, bacilli, solid elements, e.g., proteid, nucleo-proteid, sugar and mucin.

The reaction of saliva is alkaline and should always be normal for albumin and sugar.

In catarrhal stomatitis there is an increased salivary secretion which becomes acid, it is also acid in diabetes, gout, rheumatism and mercurial poisoning. There is no sugar found in the saliva in diabetes. In nephritis urea is found in the saliva. In thrush the fungi are found in saliva.

Ptyalism is the abnormal increase in the salivary secretion and is found commonly as a sequence of the use of drugs, e.g., mercury, jaborandi, tobacco, etc. In some cases it is a reaction from diseased condition of the mouth. Ptyalism is also found in mental and nervous conditions and in such diseases as smallpox, hydrophobia, generally characteristic of the period of pregnancy, particularly in the latter four months.

Aptyalism - Here we have a decrease or the absence of ptyalin. The mucous membrane becomes dry, mastication and deglutition difficult. Found in nervous conditions, or due to diseases of the brain.

Inflammatory parotitis. This condition differs from mumps in the fact that there is an inflammatory condition of the gland, secondary to some infectious disease or a complication in connection with an infectious disease such as typhoid fever, pneumonia, or as a result of a toxic condition in syphilis, especially where the patient has been mercurialized, also in gonorrhoea and pyemia. In all of these cases there is a septic infection. It is also found secondary to pelvic and genito-urinary diseases and diseases of the lower intestinal tract, also nephritis. If the condition becomes chronic the gland becomes enlarged, in some cases the gland becomes nodulated.

In these diseases of the salivary glands the lesions found are in the first to sixth cervical, also from second to fifth dorsal. Among the common lesions found are second to fourth cervicle, lateral, anterior or posterior, or anterior and lateral, third and fourth dorsal, secondary to cerebro-spinal nervous system.

In the treatment of the salivary diseases - (1) Give general treatment. To abort give treatment to cerebro-spinal fluid. Give rotation and extension of the head and neck and articulation of the spine downward, kneading the muscles along the spine in same direction.

(2) Give good treatment at fourth and fifth dorsal to relax muscles and articulate the vertebrae, reaction being for the superficial circulation.

(3) In ptyalism and aptyalism look for lesions at atlas and axis and second to fourth dorsal, especially an anterior condition obstructing the nerve supply cerebro-spinal and symp. to the gland.

(4) Look to second and fourth dorsal in relation to the ganglia of the sympathetics where the secretory fibers come off, i.e., in relation to the ribs.

(5) If the parotid glands are affected relax the muscles along the angles of the jaw and keep the mouth articulated.

(6) In some cases the lower cervical and upper dorsal are involved. In this cases the disturbance is lymphatic and you will find the lymph glands in the neck tightly contracted and rigid.

(7) Look to the condition of the stomach in relation to the solar plexus. The mucous glands of the stomach are complimentary to the mucous glands of the mouth. Manipulate and vibrate over the solar plexus. Use hot and cold applications, both internally and externally.

(8) In chronic cases look out for osseous lesions in the lower cervical and upper dorsal area and contracture of muscles in the same regions, also thickening and nodular lumps of the tissues along the anterior transverse processes of the lower cervicals.

(9) In toxic conditions deal with the condition from the toxic side.

The Spleen. - The spleen lies in the left upper quadrant, just under and in close contact with the diaphragm. It is also in close contact with the tail end of the pancreas and suprarenal bodies. The real location of the spleen is transverse direction in relation to the upper border of the ninth rib, and the lower border of the eleventh rib. Splenic enlargement is generally uniform, the direction of the enlargement being always downward and inward, unless in cases of very marked hypertrophy, where we find it outward. It can be palpated only when enlarged, unless abdomen is very much relaxed. In this case the abdominal walls are relaxed, the spleen moves with respiration, so that it can be palpated at the end of deep respiration. If it is slightly enlarged anterior surface is blunt with a sharp edge along the margin of the rib. When very much enlarged ribs are pushed out and spleen projects downward. The same can be done for palpating of a floating spleen. Put patient in knee chest position, then anterior margin of spleen is palpated by passing the hand backward over the resisting organ. This would give a resisting surface between the spleen and the lumbar muscles.

In splenic leucemia the spleen is very much enlarged, especially after eating. In this cases there is a murmur and fremitus in connection with the spleen heard by auscultation. By percussion the normal note of the spleen is dull and this can easily be made out because of the pulmonary resonance above and the abdominal tympanitis note below. Posteriorly the dullness of the spleen merges into the dullness of the lumbar area of the spine and of the kidney. The upper posterior portion of the spleen lies behind the diaphragm and under the lower part of the lungs, the splenic dullness being perceptible below the upper border of the ninth and lower border of eleventh ribs. In applying percussion in relation to the spleen have the patient on right side beginning above and percussing downward. In some cases the spleen is compressed by the stomach or transverse colon or both. This always increases the area of splenic dullness. A similar increase in dullness is

found in pleural effusion on left side, left sided in pneumonia. In some cases the spleen is pressed upward against the diaphragm, here the diaphragm is tense, as in gastric, pancreatic or intestinal tumors. In these cases the dullness is in the region of the tenth rib on the right and ninth rib on the left side, in both cases posterior. If the ligaments that hold the spleen in place become relaxed, the spleen floats. This is detected by the absence of the normal splenic dullness.

Splenitis - Here we have an inflammation of the splenic substance produced by (a) obstruction through the small splenic arteries, generally in the form of embolic or fibrinous clots. This is also found in connection with endocarditis, affecting the left ventricle; (b) it is also found in connection with some of the infectious diseases such as malaria, typhoid fever, etc. These febrile infectious conditions produce clots in the splenic veins; (c) Splenitis is also caused by traumatism involving the ribs or vertebrae on the left side; (d) It is also secondary to abscess formation, pus discharge in connection with pyemia, peritonitis, and peluritis. In these latter cases the fluid medium is the lymph.

Symptoms - (1) Marked tenderness anterior and posterior at ninth to eleventh ribs and dorsal region, tenderness over the costal cartilages, symptoms involving the stomach, intestines and diaphragm. (2) The pain is usually dull, aggravated by pressure, frequently the pain radiates up to the left shoulder. If the peritoneal covering of the spleen is involved in splenic peritonitis there is sharp cutting pain; (3) If there is pus formation we have the febrile temperature, chills and sweats. Sometimes in the splenic pus formation rigors take place of chills and the sweats are quite profuse. (4) In case of perforation there is a sudden fall in temperature with collapse of the patient; (5) If the enlargement is great there is always splenic cough and accompanying it is vomiting and hiccoughs, all due to the presence of splenic covering membrane on the neighboring organs, viz., diaphragm, stomach, etc.

Hypertrophy of the Spleen - In this case the enlargement is acute or chronic, acute where it follows infectious diseases, chronic where it follows a primary splenic enlargement. Enlarged spleen is sometimes difficult to differentiate from enlarged kidney.

(1) The spleen is less movable than the kidney; (2) the spleen does not come so close to the spine normally as the kidney, again; (3) the spleen rhythm always moves in sympathy with respiration, while the kidney rhythm in sympathy with the heart. (4) When the spleen changes its position it falls toward the median line while the kidney falls away from the median line.

The chronic enlargement of the spleen is found in connection with chronic leukemia, chronic malaria, syphilis, the amyloid diseases, the spleen chronically enlarging as the disease increases in intensity.

The amyloid diseases are associated with suppuration where the bones are involved, e.g., in syphilis of bones. In these cases we have nodules in connection with the bones.

Hydatid conditions of the spleen, here we have no symptoms unless the case becomes very severe. Here there is dragging sensation associated with cystic formation, cysts pointing anterior if it projects beneath the spleen.

In malignant tumors of the spleen there is always a primary malignant disease somewhere else. In infants and young children enlargement of the spleen always goes along with rickets, hereditary syphilis, malaria, the starting point of anemia.

Floating spleen is associated with relaxation of the ligaments of the spleen.

Treatment of the spleen. The spleen is a very important organ. It is the largest of the ductless glands. It has an important bearing first on the circulation of the blood, the spleen represents the abdominal reservoir for the blood in preparation for its passage to the liver, i.e., the spleen protects the liver from the circulation side, secondary in relation to secretion, and thirdly in relation to the secretion of the liver proper, preparing the substances which are later reformed in connection with the liver secretions.

As an organ the spleen is subject to more variation than any other organ of the body. The nerve supply of the spleen comes from the semilunar ganglia and fibers from the right pneumogastric nerve, the nerve fibers from the two sources uniting in the formation of the splenic plexus. The spleen has a very large blood supply.

The functions of the spleen are, first to disintegrate the red blood corpuscles in preparation for the liver, second, to assist in the formation of the white blood corpuscles, third, as a safety valve system to relieve the portal blood circulation when it is liable to be congested or static.

Treatment of Splenitis. The lesions are found in connection with the ribs which are generally downward and forward, especially the ninth to eleventh. This gives a secondary lesion in the diaphragm, cutting off the circulation and the nerve supply and producing a direct pressure on the spleen itself. Luxations with the vertebrae interfere with the nerve supply to the spleen. Lesions in the neck interfere with the right pneumogastric nerve. Lesions in the splanchnic area are always associated with enlargement of spleen, e.g., strong stimulation of the splanchnic area will produce or lessen the size of the spleen when enlarged. Inhibition of the spleen will produce enlargement of the spleen because of the relaxation of the involuntary muscles in connection with the walls of the spleen and its capsule. Local treatment right over the spleen causes the spleen to contract and relax rhythmically, affecting both the volume of the spleen and its blood circulation.

(1) In special treatment pay attention to the primary cause whether it be some other disease or some lesion.

(2) Treatment of spine to relax muscles, articulation of the vertebrae, 8-12 dorsal, paying particular attention to the left side, because the left splanchnic nerves are vasomotor to the spleen.

(3) Articulate 9-11 ribs. Along with this give treatment to spleen itself. (a) Before treating the spleen directly stimulate the 10. nerve on the right side, because this contracts the spleen; (b) give direct treatment to the spleen right over and under the ribs; (c) raise arm of the patient above head and at the same time push up the lower ribs and spleen; (d) follow this by giving the treatment to raise the ribs from the 8th down, first on the right side then left. This treatment will have a direct effect upon the spleen especially in connection with the elastic action or rhythm of the spleen.

(4) Relieve condition of tenth nerve in the neck and strongly stimulate by articulation on the right side near atlas, look for lesions of the atlas.

(5) Inhibit the splanchnic nerves on the left side, also right over the solar plexus and the abdomen gently downward in order to dilate the abdominal blood vessels and draw the blood away from the spleen.

(6) With patient in the sitting posture place thumbs of one hand at inner side of angle of 8th rib applying strong pressure to elevate the ribs. With the other hand raise the arm of the patient above the head. Do the same thing in relation to the 9-11th ribs. The object is to give strong stimulating treatment to the splanchnics for vasomotor effect.

In hypertrophy of the spleen (1) look to contracture of local tissues surrounding the spleen. This tends to obstruct the circulation and keep the spleen in a congested state.

(2) Stimulate strongly the circulation of blood in the following order - (a) Superficial circulation at 4-5th dorsal; (b) inhibition of the splanchnic area on the left side to increase the splenic circulation by producing dilatation of the splenic blood vessels; (c) inhibition over the solar plexus do dilate the abdominal vessels and increase abdominal circulation; (d) flexion and rotation of the lower extremities.

(3) Follow this by stimulation of the 10th nerve, extending and rotating the head, atlas and axis. This is specific treatment to contract the spleen.

(4) Stimulate the splanchnic area in order to help diminish the volume of the spleen, articulate the spine.

(5) Control the vasomotor diarrhoea that is always found in splenic hypertrophy by strong inhibition from the tenth dorsal down, especially on the left side.

In the hydatid spleen (1) Give good strong circulatory treatment to keep the muscles in the splenic area well relaxed.

(2) Put the patient on right side and push the fingers underneath the ribs as close to the spleen as possible, pushing upward while raising with the left hand the arm of the patient above the head.

(3) Give good vibration over the spleen and vibratory and kneading treatment over the abdomen downward.

In floating spleen give good circulatory treatment first of all, keeping it up for some time.

(2) Put patient on limited nutritious diet.

(3) After patient has become well relaxed and has good circulation give strong extension to the spine and diaphragmatic treatment to get free movement of the diaphragm and peritoneal structure.

(4) Put patient on right side and give strong diagonal stretching treatment. While the patient is in this position get the fingers of both hands, both anterior and posterior, underneath the ribs and try to get a hold on the spleen and bring it to its normal position or as near so as possible.

Pancreas. - The pancreas is so closely associated with other organs that it is difficult to differentiate pancreatic diseases from other diseases. It is closely associated with the function of emulsification of fats, hence, the symptoms of pancreatic diseases are those of intestinal indigestion.

In order to diagnose pancreatic conditions give the patient some fat food and watch the digestive conditions of evacuation. If the fat is passed without emulsification there is indication of pancreatic conditions. Another condition of which is of great importance is sugar in the urine.

The most characteristic physical condition is a tumor enlargement of the pancreas resulting in pressure on the bladder, gall duct and causing jaundice symptoms. In many cases the enlargement of the pancreas cannot be detected at all unless the patient is emaciated. In advanced cases of pancreatic diseases there is a resemblance to aneurism. One point of differentiation is that in aneurism the pulsation is distensible where as in tumor condition of pancreas the pulsation is vertical corresponding with the pulsation of the aorta. Among the other symptoms in pancreatic conditions there is high febrile temperature, intestinal indigestion, jaundice symptoms, severe epigastric pains. All these are indications of pancreatic tumor, either malignant or benign.

Pancreatic hemorrhage. There is a very sudden onset, with patient in seemingly normal health. (1) The symptoms being intense pain in the upper abdominal region, pain increasing in intensity accompanied by (2) nausea and vomiting; (3) patient following this becomes depressed, cold all over body, yet the pulse is quick. (4) Tenderness to touch in upper abdominal region. Tendency to subnormal temperature and collapse of patient.

Pancreatitis. This is nearly always due to traumatic conditions causing hemorrhage and resulting in the inflammatory condition of the pancreas, an injury to the lower dorsal and upper lumbar regions. (2) Vasomotor disturbance, inflammatory conditions of the stomach, duodenum, (3) inflammation of intestine and pancreatic duct. These are the direct causes which lead to pancreatitis.

Pathology - The common predisposing cause is alcoholism. There are three types of the disease from the side of morbid anatomy, first the hemorrhagic type. Here there is an engorgement of the head of the pancreas, the entire organ being infiltrated with blood and fatty tissue. The tissues around the pancreas become congested.

Second type. This is the suppurative type, follows the first type, the accumulations of blood resulting in abscess formation, later the abscess diffusing its suppurative matter throughout the entire organ and then setting up pyemia.

Third type. The gangrenous type, follows the second type in four to five days. In this case the engorged blood becomes very dark and the whole organ becomes like a black mass.

Symptoms - In the first type is usually subject to indigestion with severe pain in the region of the spleen and vomiting. The onset is sudden, although the condition may have been developing for years. It generally develops from the excessive use of alcohol. The sudden onset is marked by three to four set of symptoms -

(a) intense pain across the upper quadrant; (b) intense vomiting; (c) aggravated constipation; (d) sudden collapse of the patient in three or four days, due to the pressure of blood in connection with the cardiac plexuses. The pain in the upper abdominal cavity is a severe cutting pain causing asthmatic symptoms in connection with the diaphragm.

In the suppurative type. Common in males from 30-40 years of age, where the patient does not recover from the attack (1) The symptoms after secondary development are (a) intense continued pain in the epigastrium; (b) irregular vomiting; (c) increase of temperature, with the exhaustion of the patient; (d) emaciation, i.e., if the condition lasts for any length of time; (e) symptoms of obstruction to the portal circulation; (f) tumor formation above the umbilicus; (g) abdominal dropsical conditions and constipation.

In the third type the symptoms are those of sudden collapse, following pain and vomiting, marked anemia, neurasthenia and physical exhaustion accompanied by chills as the pancreatic abscess sloughs into the intestines, fever and sweating until the patient completely collapses.

Pancreatic cysts follow impaction of pancreatic duct. The symptoms are those of yielding or elastic tumor in the upper quadrant toward left side. The cyst is of slow development, the sense of fullness and weight being associated with the gradual growth. The tumor is always on the right side and symptoms are those of pressure on the left lobe of the liver, pressure on diaphragm, dislocation of heart sometimes. The complexion of the patient with this condition is dirty-yellow color, sometimes jaundice and colic symptoms.

Treatment - Pancreatic disturbances. The pancreas is a compound racemose gland, lying across the abdomen with its head in relation to the duodenum and tail in relation to the spleen. The gland is covered by connective tissue capsule, the continuation of the capsule passing in connection with the septum which divides the pancreas into lobules. Along with this septum pass the blood vessels. The duct runs along the whole length of the gland, small ducts running into the duct at right angles. The termination of the long duct is in connection with the bile duct with a direct opening into the duodenum.

The blood vessels in the pancreas dilate during the secretions so that the secretion in the pancreas is dependent upon vasomotion in connection with 10th cranial nerve and the sympathetics. The hepatic, splenic and superior mesenteric send fibers into the gland which when stimulated reduce or inhibit secretion. The wide extent of the gland makes it possible to stimulate the secretion by direct mechanical treatment. In vomiting the secretion is stopped within the gland. The secretion is also stopped by a lesion that overstimulates the pneumogastric nerve centrally. The stimulus to the secretion of the gland takes place normally in connection with the nerves in stomach and duodenum under the action of the food. Lesions are found - (a) in relation to the stomach, action is reflex; (b) in relation to duodenum; (c) spleen or liver, here we have the blood reacting on vasomotion of the pancreas, (d) lesions involving the 10th nerve in cervical or middle dorsal.

In pancreatitis deal with the pain and tenderness in the epigastric area and the shooting pains in the back and shoulders by relaxing the muscles along the spine beginning in the upper cervicle downward. Especially look for sensitive points in the splanchnic area, upper lumbar area, and the regions of the left 10th nerve, supplies pancreas, heart and liver.

{2} Give extension to the spine and back.

{3} Give direct treatment to the abdomen in the supra-umbilical region. Manipulate the gland from left to right with good strong treatment over the left side of the semilunar ganglion, continuing the manipulation of the intestine downward from the duodenum.

{4} Vibrate over the pancreas and then apply elastic pressure to stimulate the organ circulation.

{5} In dealing with the hemorrhagic type give the same treatment as in peritonitis.

{6} In the suppurative type attend to the absorbent lymphatic and circulatory systems. Keep the excretory systems open.

{7} In pancreatic cysts give the treatment lightly every day, especially a direct treatment over the cyst itself. This means vibration and light pressure.

{8} In all these pancreatic diseases diet the patient lightly, giving a nutritive diet and one easily digested, eliminating all fat foods from the diet. In early stages peptonized or pancreatized food may be given.

The Liver. - Functions of the liver: (1) Metabolism - fat, carbohydrates, proteids; (2) Secretions - bile, glycogen, etc.; (3) Excreting - bile; (4) Detoxinating; (5) Urea function; (6) Internal secretions in relation to the so-called ductless gland function.

In connection with the liver we find all of the diseases that are associated with an active organ with a large blood supply and masses of cell substance. The liver has a great resisting power to disease. The most important of the diseases are those associated with morbid processes, the most common being abscesses. These morbid processes take place in the organ itself, first, on account of the functional derangements in the hepatic cells; second, some obstruction of the blood flow and vaso-motor function; third, some obstruction in the bile flow from excretory side. Sometimes liver conditions may arise in connection with disorders of the stomach, infectious diseases, etc.

Among the morbid processes in the organ we find - (1) congestion, secondary to congestion of the spleen; (2) abscess; (3) degeneration; (4) cancer or neoplasm, all these causing similar changes to those found in other organs. Functional changes are found in connection with modification in the products formed normally in the liver, e.g., in complete destruction of toxins, incomplete disintegration of hemoglobin, imperfect metabolism, such as in glycosuria, leucocythemia, imperfect bile secretion as in jaundice, in yellowatrophy of the liver, obstruction of the bile ducts taking place from local disease or extrenal pressure. Most of the diseases of the liver are secondary to some primary disease in another organ. These liver diseases are found early or late in life when liver has become depleted by continued strain upon liver functioning. Among

the diseases of the liver we find cancer, found in the female sex, cirrhosis of the liver in the male sex, gall stones in people of sedentary habits, also in those who use an excess of fatty foods. The most prominent symptom in all diseases of the liver is pain. Acute pain indicates peri-hepatitis, acute paroxysmal pain below the ribs in the right epigastric region indicates gall stones. Pain in the liver with a feeling of distress or depression indicates congestion of the liver, a stabbing or cutting pain indicates cancer.

Hyperemia of the liver - Abnormal fullness of blood vessels in the liver, in some cases amounting to engorgement, caused by some form of obstruction to the blood. There are two types of hyperemia - (1) Active, representing the arterial blood, generally caused by dietary conditions amounting to overeating, overdrinking, etc. In many cases the engorgement becomes chronic resulting in structural changes of the liver in connection with which we have as the most common symptom constipation. It is also found secondary to malaria, diseases of the temperature apparatus, suspension of the menstrual function when it continues for some time. (2) Passive type due to obstruction of the venous blood, as in valvular diseases, and some diseases like cirrhosis of the lungs. The obstructions are found generally in connection with the vena cava or with the flow of blood through the liver itself. In this case the lesions are usually found from the fifth to ninth dorsal affecting the vasomotors to the liver, also lesions of the lower ribs on the right side.

Pathology - (1) Enlargement and engorgement. (2) In the passive type the central part of the lobule and hepatic vein area is very dark colored due to accumulation of blood. The portal vein area is pale in color and resembles a nutmeg. (3) In long standing cases there is atrophic formation of the connective tissue in place of the liver substance.

These symptoms are generally chills, secondary to alcoholism and dropsical conditions. In the last case there are always symptoms of acute gastritis. In the passive type the symptoms are enlargement without pain and tenderness. (4) The liver is hardened and there is strong pulsation. (5) When pressure of the hand is laid over symptoms of obstruction to the portal circulation are presented, especially those that react upon the heart, in the passive type there is a gradual onset.

Treatment - There are lesions in the splanchnic area of the vasomotor type and in connection with the lower ribs and tenth nerve vasomotor types.

(1) Gain control of the vasomotors by careful manipulation of the splanchnics, relaxing treatment of contracted muscles, followed by articulation of the splanchnic area.

(2) Direct treatment to raise and spread the ribs. Add to this strong stimulation of the solar plexus and to the abdominal region in general. The object is to first stimulate mechanically the liver and then stimulate the solar and hepatic plexuses respectively.

(3) Stimulate excretion of bile by pulling up the ribs while pulling downward on the bile duct.

(4) Strong inhibition of the splanchnic and the solar plexus and abdominal blood vessels to free congestion and pull the blood into the mesenteric circulation.

(5) Rhythmic vasomotor treatment in the neck.

(6) General circulatory treatment especially to the extremities.

Jaundice - There are several types. The most common type is the catarrhal due to catarrhal inflammation with consequent obstruction to the bile duct. Among the causes are subluxation of tenth rib on right side gastro-duodenal inflammation or catarrh, the catarrh being due to dietetic conditions. Among the predisposing causes are malaria, Bright's disease portal obstruction and chronic heart disease.

Pathology - The mucous membrane is swollen and distended due to congestion and the orifice is filled up with mucous or mucoid accumulations while the inflammation involves the duct. The liver is slightly enlarged and there is gastritis, the enlargement being painful. In some cases there is organic heart trouble and emaciation.

Symptoms - (1) Tenderness and soreness over the duct; (2) cutting pain over the duodenum; (3) nausea and vomiting by reaction; (4) constipation; (5) pain in the back and limbs; (6) slight febrile temperature always with severe headache in the onset, followed by severe chills and vomiting.

The second type of jaundice is the symptomatic type. In this case there is no disease, but jaundice is simply a symptom with some other disease. There are two sub-types - (a) hemotogenous (non-obstructive) in which there is suspension of liver-cell function, e.g., acute yellow atrophy and some malignant disease; (b) hepatogenous (obstructive) in which there is obstruction in connection with some of the ducts, e.g., gall stones. The immediate cause of symptoms in both types is pigmentation of the skin.

The primary etiological factor is the inability of the liver to take care of its blood thus tending to cause some obstruction, by pressure or otherwise, to the elimination of bile in its normal channel so that it is compelled to discharge it through the blood by absorption instead of the normal excretory channels. May also be caused by gall stones, gastric tumors, enlarged glands in connection with the enlarged hepatic flexure, abdominal or uterine cancer and irritation to the splanchnic area by lesions from sixth to tenth dorsal.

In the catarrhal type the lesions are located at tenth dorsal to first lumbar, thus representing a vasomotor disturbance resulting in interference with the circulation, producing inflammation and thickening of the duct, secondarily the solar plexus is inhibited from the vasomotor side, preventing the normal impulses to the liver from the solar plexus. The splanchnics are also inhibited, preventing the normal impulses from passing to the liver.

The points to be aimed at are the relieving of inflammation of the bile duct and to stimulate the flow of bile into intestines.

(1) Inhibition in the splanchnic area from 5-8 dorsal, sensory nerve supply, to relieve pain and relax abdominal muscles.

(2) Steady deep inhibition over upper abdominal region with treatment of bile duct at duodenal end with steady pressure over duct and downward movement toward duodenum.

(3) Treat directly the substance of the liver by steady pressure with patient on back applying pressure antero-posteriorly in the region of the lower four ribs. Keep up pressure until you get an elastic reaction, then push the fingers underneath the cartilages and treat liver rhythmically until you get elastic reaction of the liver itself, stimulate bladder and duct through hepatic plexus.

(4) Stimulate vasomotors in the neck and at same time the vagus nerve. This causes contraction of gall bladder. At same time stimulate right splanchnic. Follow this by raising the upper thorax so as to free the vagus nerve.

(5) Correct lesions found. Area is from sixth to tenth dorsal also pneumogastric and phrenic nerves.

(6) Vibrate over liver area; follow this by rotation and flexions of the extremities.

(7) Treat for constipation from the vasomotor side.

(8) If diarrhoea is established in common with excessive outflow of bile hold the diarrhoea in check by inhibition at 11-12 D.

(9) Irrigate intestines with cool water to clear out irritating substances. Give patient alkaline water to drink and apply the rest cure.

In symptomatic jaundice the bile is absorbed by the circulation and is deposited in the skin. The lesions are found at 6-7 dorsal; twisted 9-10 ribs, intense contracted muscles of the right C region, superior cervical ganglion of the sympathetic, first dorsal, lower splanchnic lesions, also lesions of the right lower ribs. In the main follow out the treatment as in catarrhal jaundice, substituting the visceromotor for the vasomotor and symp. nervous system.

In addition to these points - (12) Raise up the intestines from the iliac region to give free visceromotor action.

(13) Look to the primary diseases that may be found, especially affections of the heart and stomach from vasomotor and symp. sides.

In Infantile Jaundice we have a condition which is due either to congenital destruction of the ducts or to continued catarrhal inflammation. This disease is found in foundling hospitals and is due largely to defective diet, either of the mother or child or both. Here the duct is very small or entirely closed, jaundice developing very quickly, sometimes before birth. The child becomes comatose and convulsive, death taking place in the convulsions. Hematogenous type is developed after birth, it is simple jaundice without the gastric disturbance. The first symptom is discoloration of the conjunctive. Enlargement of liver is due to inflammation to the portal vein, sometimes this develops into suppurative jaundice. Marked increase of temperature, great tenderness, peritonitis or pyemia are some of the symptoms. The bile tension is greater than the blood pressure causing the blood to absorb the bile. This type of jaundice is common in hereditary syphilis.

Acute yellow atrophy of the Liver - is the malignant type of jaundice. Here the symptoms are accompanied by inflammation and rapid destruction of the liver cells, followed by a reduction in size of the liver, resulting in profound nervous disturbance. The disease is toxic or nutritive, begins in the acute diffused inflammation over the liver, followed by necrosis of the liver substance. Found mostly in females in the later stages of pregnancy, in anemic subjects or following pregnancy where the system is depleted. It is supposed to be the cause of deficiency in the blood elimination.

Pathology - The liver substance is the same as in phosphorous poisoning caused by retention of the bile which destroys the liver cells, the liver becoming atrophied. Among the other organs affected are the kidneys and heart, passing into a state of fatty degeneration.

The symptoms of jaundice are discoloration, gastro-duodenal catarrh, itching all over the surface of the skin, accompanied by pigmentation, a suddenly developed vasomotor headache, vomiting, dark brown liver spots along the spine, stupor delirium, convulsions and sometimes hemorrhage under the skin into the subcutaneous tissues, bile and albumin in the urine, symptoms of well marked and pronounced coma.

In the treatment of this condition there are two conditions to be dealt with - (1) retention of the bile and its (2) toxic effects on the liver and accessory organs.

- (1) Elimination of all alcoholic stimulants, spices etc.
- (2) Stimulate circulation to liver, spleen stomach and small intestines in order to affect the portal system.
- (3) Stimulate rhythmically the vasomotors to the liver at 8-10 dorsals on the right side.
- (4) Liver treatment for the gall bladder and bile duct.
- (5) Keep the excretory system open, especially the kidneys and skin. Pay attention to 2-4 dorsal and to 2-5 lumbar, also to the urine and sweat excretion.

In the treatment of the infantile type no special treatment is necessary. Here the primary condition must be treated.

Cirrhosis of the Liver - Here we have diffuse chronic inflammation, representing and atrophy and caused in some cases by some irritant entering the liver from the portal circulation.

Pathology - (1) It begins in a hyperplasia of the connective tissue that destroys the hepatic cells. (2) This results in the contraction of the liver substance and of course atrophy.

It is found in males in middle life and in children who have hereditary syphilis. The most common cause is the excessive use of alcohol, or excessive use of spices, it is secondary to syphilis, gout, rheumatism, tuberculosis malaria, etc. Another type is due to the obstruction of the bile duct with an overgrowth of connective tissue. In this case there is hypertrophy of the liver. Secondary cirrhosis may result from congestion of the liver. This gives the characteristic morbid anatomy of "nut-meg" liver. (1) The first stage of cirrhosis from the pathology side is hyperplasia of the connective tissue; (2) followed by increase of connective tissue and the (3) atrophy of the true liver cells. There are two types - atrophic and hypertrophic. In the atrophic type there are frequently no symptoms, the real condition being found only after death. The first symptom of the hypertrophic type is hemorrhage due to an attempt to establish a collateral circulation. (3) The obstruction to portal circulation through congestion of stomach and intestines gives us the characteristic symptoms of these conditions, chronic gastric symptoms with the dilatation of the superficial abdominal veins, oedema of the lower extremities, abdominal ascitis, always emaciation, symptoms of deficient nutrition and those of local obstruction.

Treatment of Cirrhosis of the Liver - (1)

Direct treatment to liver and its circulation in order to keep up its functional activity and circulation of blood to prevent the formation of connective tissue.

(2) Regain control of the vasomotor apparatus in order to prevent congestion. This is done by alternate stimulation and inhibition of the general hepatic vasomotors.

(3) If abdominal ascitis develops treat in a general way for dropsical condition. Do not resort to tapping unless absolutely necessary. Static electricity may be used along the spine to produce absorption.

(4) Correct the lesions in every case, articulate carefully in splanchnic area, giving local liver and abdominal treatment at same time.

(5) In atrophic cirrhosis give thorough splanchnic treatment to relieve congestion. Also treat stomach, intestines or spleen by means of vibration.

(6) In the obstructive type raise the lower left ribs. Also stimulate splanchnics and solar plexus on same side, apply deep inhibitory treatment over lower abdomen to relieve the abdominal circulation.

(7) In the obstructed condition of the bile duct treat as in jaundice and give treatment to empty gall bladder.

(8) Reflex congestion and inflammation should be handled by dealing with the circulation through the stomach, intestines and spleen and keeping all the soft tissues around the liver well relaxed.

(9) Give a very light and easily digested diet in fluid form. Have patient exercise freely in the open air.

Gall stones or biliary calculi form in the biliary ducts or gall bladder and sometimes remain for a long time without giving symptoms. The main symptom is hepatic colic. Found in middle-aged people and more frequently in the female sex. They exist in individuals who use excessive quantities of starch and sugar. The principal nucleus part of the gall stone is made up of the cholesterol. Normally, in the normal organism the cholesterol is precipitated and broken up by the action of bile. The elements in the bile that break up cholesterol are the sodium salts, as a solvent.

The principal condition which predisposes gall stones is the thick bile, i.e., lack of fluid. The cerebro-spinal system is at fault. Gall stones are secondary to chronic constipation and sometimes to melancholia.

Normally sodium salts hold cholesterol in solution. A predisposition is found in the thick bile and normally the secretions of the pancreas and spleen act as solvents of cholesterol.

Lesions found are from 8-10 dorsal and corresponding ribs on left side. The rib lesions interfere with the spleen so that the blood is not sufficiently changed before it passes to the liver. Gall stones may be found in the gall bladder where they accumulate, also in the bile duct and intestines. If they lodge in the duct hepatic colic is present. Here we have severe pain in the hepatic region preceded by biliousness, indigestion, disturbances of vision and flushing of the face.

Hepatic fever is another complication of gall stones and is found in connection with obstruction to gall duct produced by the gall stones. Here there is moderate rise in temperature, Lesions found are - (1) visceromotor in the lower splanchnic area; (2) vasomotor the lower four ribs on the left side affecting the spleen and gastrointestinal tract. These interfere with the nerve supply causing irritation and overactivity of the dilator fibers of the gall duct and gall bladder, resulting in stagnation of the bile and causing precipitation of cholesterol; (3) Lesions involving tenth cranial nerve in the cervical region. This cuts off the impulses that normally contract the gall bladder and relaxes the sphincters in connection with the common bile duct producing stagnation of bile; (4) Motor spinal lesions in the splanchnic area interfering secondarily with the vasomotor nerves to the liver and producing a catarrhal condition of the mucous membrane. (5) Lesions affecting the spleen and pancreas, 9-11 ribs, on left side interfering with production of the normal internal secretion. (6) Lesions affecting the sensory side of the nerves of the liver and gall bladder. These nerves pass through the sympathetics in connection with 8-10 dorsal spinal nerves. Lesions affecting these account for hepatic colic and also account for the radiation of pain through the shoulders, the shoulder pain being transmitted out along the spinal accessory nerve.

Treatment - (1) Relax muscles along the spine. Relax the lower ribs and stretch the two sides of the patient by diagonal treatment, the left side first. These treatments will relieve hepatic colic, remove the gall stones and build up the normal function of the liver.

(2) Apply strong inhibitory pressure on the posterior spinal nerves from 7-10 dorsal close to the spine, especially on right side. This will relieve the pain by the action that you get on the sensory nerves that supply the biliary duct and will also cause its dilation.

(3) Give deep inhibitory treatment to the abdominal muscles upward from the iliac region.

(4) Give deep inhibition right over the liver itself, followed by application of the rhythmic treatment.

(5) Vibrate deeply over the gall bladder and duct, elevate and expand the ribs. Articulation of 8-10 ribs will do much to prevent gall stones.

(6) Stimulate action of pancreas by rhythmic treatment in order to increase internal secretion. Treat at 9-10 ribs on the left side, articulating the ribs and giving the springing or elastic treatment to the ribs.

(7) Attend to the heart of the patient in order to prevent collapse.

(8) Regulate the diet and eliminate oil fatty and saccharine foods, and have patient take regular exercise, especially late in the afternoon. Two meals a day should be taken in this case and these light.

Cancer of the Liver - Found in the male sex at forty years of age, secondary to cancer in some other field, or to chronic gastritis or intestinal catarrh.

Cancer is a blood disease and the foundation is a perverted condition of the red blood corpuscles. On account of the above condition all the waste matter of the body accumulates in connection with the corpuscles. Hence we find the giant corpuscles in cancer.

The localization of cancer is determined by traumatism or overactivity amounting to the abuse of function or to congestive conditions that become static conditions of the blood or to excess of the deposit of certain foreign elements in the food, in water with an excessive amount of lime will determine the localization of cancer in the stomach. In the liver the general cause of cancer is the overactivity of the liver in the metabolic field.

Lesions found in cancer of the liver are vasomotor from the 6-10 dorsal and corresponding ribs.

Pathology - There are two types of cancer of the liver-

(1) the nodular or multiple cancer of the liver in which we have opaque yellowish nodules over the liver or on the surface of the ducts. When the nodules are on the ducts we get the obstructive type. (2) This is called the massive cancer. In this case the liver becomes a cancerous mass.

Symptoms - (1) Increase in size of the liver with hardening and pain, accompanied by irregularity on the surface of the liver, brought out by palpation; (2) emaciation in the trunk of the body. This is a symptom in nearly all abdominal cancers; (3) another symptom is ascitis in the upper half of abdomen.

Treatment - From the osteopathic standpoint the cause is a capillary congestion produced by some obstruction. To meet this condition - (1) Stimulation of arterial and venous circulation to the liver, through vasomotors in neck, in the splanchnic region and vagus nerve. Stimulation of lymphatics will also assist this.

(2) Relaxation of muscles followed by articulation of vertebrae from fifth dorsal down.

(3) Vibration to abdomen and liver. The object being here to break down the cancer.

(4) Palliative treatment - (a) inhibition to the spine, brachial and lumbar plexuses, (b) strong rhythmic treatment to the vasomotors to the liver; (c) direct treatment to liver itself by friction over cartilages.

Abscess of the liver - This is a secondary condition of the suppurative stage of hepatitis found in the diffused or localized type. There are two types-the single and multiple. The single type is found secondary to dysentery in connection with the amoeba coli, the germ passing from the liver into the intestines (vice versa) The condition may also be caused by traumatism. The multiple is secondary to some inflammatory process of the alimentary tract or to gall stones.

Symptoms - Here we have a typical symptom of abscess, chills, febrile or subnormal temperature and sweats.

Treatment - Sometimes it is a surgical case and this may be determined by the pyemic symptoms. If you operate in this case a permanent fistula must be established. In early stage it is to be treated as localized pyemia.

Diseases of the Excretory System.

The kidneys may be affected in connection with the circulation, mechanical obstructive conditions of the blood vessels due to emboli or thrombi - endocarditis. The most common condition is renal infarction. Secondary to infectious diseases. In nearly all the infectious diseases the kidneys are liable to be involved. By inflammation on account of an attempt to eliminate the toxins or poisons through the kidneys that are produced there. By infection upward from the lower urinary field. This is a type of membranous or sympathetic inflammation or infection. The kidney is also susceptible to reflex neurosis, the neurotic processes being started from some other field. The kidney stands at the apex of the excretory system of canals, consequently any obstruction or alteration affecting the apex directly or any part of the canal system will react on the kidneys producing atrophy or hypertrophy.

The morbid or pathological processes are the same as in other organs. The symptoms may at first be general. In this case the whole body reacts through the kidney. Second, local - the principal local symptom is pain. This may be due to functional conditions or structural changes.

Subjective symptoms - These are due to morbid changes in the structure or function of the kidney. The principal subjective symptom is pain in the small of the back, increasing by movement. We also find with the pain a sense of pressure and sense of weight and the pain radiates over the entire lumbar and lower dorsal regions. If only one kidney is involved the pain is unilateral in the posterior region opposite the first two dorsal and first two lumbar vertebrae. If both kidneys are involved the pain is bilateral, radiating around from posterior to anterior part below the umbilical line. If the pain is constant it is due to organic disease of the kidney. If the pain is paroxysmal or sharp cutting it refers to an obstructive condition due to calculi or some foreign body. In renal colic the pain is associated with another symptom, frequent micturition which is scanty during the colic and often in severe cases it is profuse hematuria. In kidney tumors the pain radiates downward along the sciatic nerve, becoming more severe lower down.

Objective symptoms refer to physical changes in the kidney or its relation with other organs, e.g., tumors, floating kidney, etc.

The kidney moves in connection with respiration, i.e., rhythmic, which enables one to locate the kidney and also to detect anterior conditions of movement.

In palpation for floating kidney have patient in standing and bending over back of chair, resting chest on back of chair. This throws kidney anterior so that you may palpate it and apply percussion. In the kidney we expect to find a double percussion note, one note corresponding with the superficial dorsal and lumbar muscles and the other corresponding with the deep substance of the kidney. In enlargement or hypertrophy look for increase to right and left of the double note. In cancer look for irregularity in the superficial substance of the kidney giving a deeper percussion note of dullness.

In the functional diseases of the kidney we find abnormal excretions in the form of toxic matter, pain also radiating downward, vertigo, eye symptoms, convulsions and delirium. Dilatation of both kidneys are found in toxemias, sometimes myocarditis and retinitis.

The functions of the kidney are to separate from the blood the solid matter resulting from metabolism, to separate the excess of water from the blood and to form an internal secretion out of the waste and toxic elements brought to the kidneys for elimination. The posterior surface of the kidney is in close relation to the crest of the diaphragm, consequently the 11-12 ribs represent the field of mechanical lesions, the quadratus and psoas muscles are liable to be involved here. The right kidney is covered over by the right lobe of the liver, a portion of the descending duodenum and portion of the transverse colon. The left kidney lies behind the fundus of the stomach, tail of the pancreas and the first part of the descending colon. This gives us fields for irritation and pressure in relation to kidneys.

At the hilum of the kidney the vein is anterior, the artery at middle and the outer portion. The blood supply is from the abdominal aorta, by branches which enter hilum of the kidney. These branches are developed by connective tissue, continuous with capsule. These branches giving origin at base of kidney to the interlobular arteries that radiate into the cortex. The small branches throw off small branches passing into the Malpighian corpuscles, the urinary tubule beginning at the upper end of the corpuscle.

The nerves to the kidney originate from the renal plexus, these representing branches from the solar plexus, branches from the lower and anterior part of the semilunar ganglion and from the aortic plexus with direct fibers from the lesser and least splanchnic nerves. There are several small ganglionic plexuses found along the course of these branches. These are of value in that they establish communication between the renal plexus and the spermatic plexus, giving origin to the genitourinary nervous system. The function of the nerves is to regulate secretion and excretion.

Increased secretion may be produced - (1) by change in the blood pressure. This change depends upon the blood volume, the contributing factors being vasomotor changes or direct pressure changes of the blood in the aorta. (2) Any nervous stimulation, psychic or emotional, causing increase in the flow of blood through the arteries as in hysteria and cerebral diseases. In these cases the amount of urine is increased because of the lack of inhibitory control of the higher centers.

Physiological experiments prove that if all the nerve fibers of these vasomotors are divided there is a congestion of the blood of the kidney and a large increase in the volume of blood and of secretion because of the sudden rise in pressure and the great increase in arterial dilatation. If in addition to this the greater splanchnics are divided a still larger quantity of blood passes to kidneys and a larger quantity of urine is secreted on account of the complete vasomotor paralysis. In this case the blood pressure falls because of the large area that is paralyzed.

If in addition to this the lesser and least splanchnics are strongly stimulated the secretion is diminished, because of the increased vasoconstriction in the renal arteries.

Physiological experiments also indicate that a division of the spinal cord between the cervical and dorsal areas stops the flow of urine because it cuts off the accessory splanchnics - action in the lower cervicle area, in this way reducing the general blood pressure. These experiments seem to prove that the kidney secretion depends on the quantity or volume of blood flowing through the kidney, the resulting pressure affecting the secretion only through the change in the quantity. This means that suppression of urine from the kidney side is a visceromotor condition. The change in the blood pressure depends on the action of the lesser and least splanchnics, the accessory splanchnics in the lower cervicle region and cerebral conditions.

Normally, the kidney has a larger circulation in relation to its size than any other organ in the body. The increase of this volume will mean the decrease in the general quantity in the other organs of the body beyond normal, hence, there will be secondarily a lowered pressure in the other parts of the body. The stimulation of the sensory nerves causes an increase in the blood pressure of the kidney and a diminution in the blood volume on account of the partial stasis of the blood, i.e., visceromotor phenomena. When the arterial blood pressure is lowered over the rest of the body, e.g., by dilation of the superficial blood vessels, the amount of blood in the kidney is lessened and the amount of urinary secretion is also lessened.

In treating kidney diseases we must take account of the the large local blood circulation so that if the circulation is poor in the rest of the body or stagnant anywhere the volume of blood in the kidneys will be lessened, hence in all kidney diseases the first thing to do is to relieve the general circulation and bring back as nearly as possible the normal blood pressure.

(2) The liver is so closely connected with the kidney and it receives next to the kidney the largest amount of blood in relation to metabolism, consequently if the liver is receiving an excess of blood metabolism will be exaggerated and the blood will be over-supplied with end products to be eliminated, these end products acting as stimuli to kidney secretion. Hence, one of the points in correcting kidney conditions is to correct liver conditions.

(3) In all kidney conditions we look for lesions in the vasomotor area causing an irritation to the kidney blood supply. The renal artery comes off directly from the aorta where blood pressure is highest and the renal vein empties into the vena cava where the blood pressure is lowest, therefore, in treating kidney diseases we can only use the two great forces represented by the positive pressure of the blood. This explains the close relation between heart and kidney diseases, it also explains the difficulty in dealing with kidney diseases when the venous blood is in bad condition.

(4) Urea and uric acid normally act as stimulants directly to the secretion of the kidney and also in connection with excretion of urine, hence attention must be paid to the amount of urea and uric acid resulting from liver metabolism.

Hyperemia of the Kidney - Increase in amount of blood in renal blood vessels, active or acute type involving arterial blood, passive or chronic type the venous blood. Active type caused by injuries in splanchnic area, muscular or ligamentous, also by irritating poisons, exposure to cold, septic fevers or surgical removal of one kidney and secondary to heart disease.

Pathology - (1) The kidney becomes swollen, caused by the accumulation of blood; (2) under the capsule there is accumulated mass of coagulated blood; (3) the vessels through the substance of the kidney become congested and the epithelium is thickened by the absorption of serum.

Symptoms - (1) Scanty urine and sometimes suppression, (2) high color, increased specific gravity, albumin in urine with blood and epithelial casts, (3) pain in small of back radiating downward along the ureter paths with intense pain in the bladder, (4) along with headache, nausea and vomiting reflex.

In the passive type of hyperemia the cause is a venous stasis secondary to diseases of the heart, lungs or liver, cardiac dilatation and pulmonary emphysema. Sometimes due to obstruction caused by pressure on the renal veins in connection with tumors, thrombi, or the thickened or enlarged conditions of the intestines?

Pathology - (1) The kidney becomes swollen caused by the accumulation of static venous blood and (2) hard with overgrowth of connective tissue, followed by infiltration of tubules, shrinkage of the Malpighian bodies and fatty degeneration of the renal epithelium.

Symptoms are those of primary diseases, diminution in urine, high specific gravity, large increase in uric acid, urates, urea, in the latter stages a large proportion of albumin, hyaline casts, red blood corpuscles and a general congestive condition of other organs of the body.

Treatment of Hyperemia of the Kidney - There are two points to be attended to - (1) control of the volume and outflow of blood through the vasomotor system. This is best done by a rhythmic treatment downward in the lower splanchnic area 10-12 dorsal. (2) Control of the excessive inflow of the arterial blood. This takes place from visceromotor side. - Here we deal with the blood volume and pressure in the fields of the heart and the thoracic and abdominal aortae.

Lesions found in hyperemia are - (1) atlas lesions, axis, lesions of the second to fourth cervical in direct relation to the superior cervical ganglion, interfering with the kidney center in the medulla, (2) also lesions of tenth to twelfth dorsal and first two lumbar taking in the three kidney areas, (3) lesions of the fourth sacral in relation to the visceral dilators in the urinary field, (4) also lesions in relation to uterine prolapse field, obstructing or irritating the urethral system, (5) prestatic gland enlargement, especially involving the middle lobe of the gland, and lesions of second to fourth sacral, dilators to kidney are visceromotors. These conditions show themselves in the sacral region because of a secondary congestion in that region.

In the specific treatment proper - (1) Give patient absolute rest in bed without any food for twenty-four hours, plenty of cold water, free use of vapor or hot water bath with heat applied in the small of the back.

(2) Relaxation of the muscles in the spinal area of the splanchnics, followed by articulation of the vertebrae in that region.

(3) Strong and steady inhibitory pressure in the sacral region, followed by deep vibration over kidneys in the abdominal region anterior.

(4) Strong stimulating treatment by articulation from 6. D. to 2. L. continued through the sacral region.

(5) Relaxation of the soft tissues around the umbilical region, followed by deep inhibitory pressure in the aortic and renal plexus regions.

(6) Circulatory treatment with strong inhibition over the superior cervical ganglion to relieve the blood tension.

(7) Localized inhibition at the second and third lumbar and 8-12 dorsal vertebrae. Keep this up for some time.

(8) Strong stimulation of the lymphatics through the spinal centers.

In Chronic Hypertension - (1) Give rhythmic treatment to the vasomotors to normalize the blood pressure to heart and kidneys.

(2) Strong inhibition of the superior cervical ganglia and of the sciatic nerve at the spine in order to relieve the abdominal blood tension and increase the blood tension in the lower extremities.

(3) Open up the circulation to the lower extremities by rotation, etc. of the lower extremities.

(4) In case of hemorrhage indicated by hematuria apply the principle of ligature to the lower extremities, first applied to one limb for one-half hour than to the other limb for one-half hour each day. After the ligature is removed manipulate the limbs upward. The object is to relieve pressure on the kidneys and to stimulate the superficial circulation.

(5) Keep the intestines open by treatment.

(6) Diet. Give the patient very light and easily digested and assimilable diet, milk here is best. At the periods of crisis use predigested food. Give the patient plenty of cold water to drink.

(7) Use hot fomentations freely to relieve the pain locally over abdomen and at spine.

Uremia - is a symptomatic condition representing the retention of toxic elements in the blood, viz. urea. It usually rises in the course of nephritis or in some obstructive condition of the kidney circulation, also in cases of an obstruction to the ureters and in bladder conditions, also sometimes in prostatic troubles.

The acute type develops suddenly with symptoms of convulsions, headache, sometimes epileptic or apoplectic spasms, without paralysis.

The chronic uremia comes on slowly, the first symptom being loss of appetite, followed by nausea and vomiting, later by headache,

semi-stupor. Among the first symptoms are headache in the occipital region, radiating down the neck, vertigo, weakness of vision, flashes before the eyes, tingling of the scalp and fingers. These symptoms are aggravated in the morning.

(2) Delirium. If the temperature is normal or subnormal the attack is usually of the mild type, if above normal there is mania, followed by convulsions, epileptiform spasms followed by coma.

(3) Temperature is high, if patient is exhausted, subnormal. Along with high temperature there is temporary blindness, temporary deafness, localized anemia of the brain, partial paralysis, the typhoid condition with a fetid odor of breath, muscular twitching.

(4) Nervous symptoms - cramps in the limbs, numbness of fingers and scalp, itching along the legs and spine.

(5) Dyspnoea. In most cases paroxysmal, worse at night.

(6) Gastro-intestinal symptoms. With loss of appetite there is a dislike for food. Common in the morning. We also find persistent hiccough, paroxysmal in nature.

Treatment - Spinal lesions are found in splanchnic area and also in the lumbar region. Most frequent lesions are found at sixth dorsal, second to fifth lumbar, third and fourth sacral and solar plexus lesions, rigidity and tenderness being found there.

(1) Direct treatment to kidney itself to overcome inability to functionate. Give treatment over abdomen on either side of umbilicus. Also treat the kidneys posterior. Moving and vibration.

(2) General circulatory treatment to head and neck field and stimulate the splanchnic area, lesser and least splanchnic fields.

(3) Stretch the serrati muscles and give direct treatment to mesenteric plexus. Stretch muscles of abdomen.

(4) Use the hot vapor bath and irrigate intestines with hot normal salt water to increase kidney secretions, intestinal action and sweat secretion.

(5) Apply direct stimulating treatment to the vasomotors in the portal system field, 8-10 ribs, treat the liver and spleen locally so as to prevent portal blood stagnation.

(6) Strong articulation from 8. dorsal downward to 5. lumbar.

(7) Give the patient only cold fluids, light diet, avoiding the nitrogenous foods.

(8) See that the liver is kept thoroughly stimulated to prevent the accumulation of bile.

Acetonuria. - Toxemia involved in the final stages of diabetes, sometimes in the course of the pancreatic diseases. Here we have acetone in the blood. It comes on suddenly with intense pain in the stomach, then it is followed by nausea and vomiting and intense dyspnoea, much like asthmatic conditions due to the toxemia of the medulla centers. The temperature becomes subnormal, pulse irregular and thready and the patient falls into coma or delirium.

Treatment - The main line of treatment is palliative as it is only a complication in connection with the toxic condition.

(1) Control the pain, give strong inhibition in the solar plexus.

(2) Strong inhibitory treatment in the splanchnic area followed by stimulation of the sacral nerves downward.

(3) Give hot vapor bath with intestinal irrigation (hot).

Amyloid Kidney - Condition of infiltration of the kidney, extending into kidney structure. Represents a degenerative condition of the albuminoid substance and is found as complication of Bright's disease. May also be secondary to suppurative conditions, as of bones in T. B. or in cancer of bone. The kidney is enlarged, pale, skin is waxy, the kidney substance itself being degenerated.

Symptoms. - The most marked symptom is a profuse watery diarrhoea, then there is oedema of the lower extremities accompanied by emaciation of the rest of the body, increased urine with low specific gravity, large quantities of albumin with fatty material and casts.

Treatment - (1) Pay attention to the original condition which is Bright's disease in most cases. Always treat the liver by strong stimulation, keep the intestines open. Do not check the diarrhoea but control the pain.

(2) Circulatory treatment to equalize the general circulation so as to prevent blood pressure in the kidney from being increased.

(3) Control the pain by application of heat to the spine in the middle dorsal region, along with this give inhibitory and articulatory treatment in the same region.

(4) Diet. Eliminate from the diet all starchy food.

Nephrolithiasis - Renal Calculi. Here we have formation of calculi. It is more common in the male sex and may be hereditary. The starting point is inflammation of the pelvis of the kidney. Osteopathically it is caused by misplacement of ribs and vertebrae in tenth dorsal to first lumbar. There are three types -

(1) The uric acid type. Here we have hard brownish red or blackish granules of smooth surface, consisting of layers of uric acid and urates. When found in the urine the calculus forms a nucleus around which mucous, epithelium and broken down tissue has collected.

(2) The calcium oxalate types. Formed in connection with uric acid. The granules are dark in color, irregular in shape. The surface is not smooth and the sharp points on the calculi cause intense pain.

(3) This type consists of phosphates with uric acid or calcium oxalate, the color is white and soft and the calculi are composed of phosphate of lime, ammonia, magnesium phosphates and other substances.

Symptoms - If calculi are small there are no symptoms, except occasional pain in lumbar region with tenderness on pressure over kidney or intestine. In large calculi pain is intense, with hemorrhage giving the dark colored urine. In some cases the ureter becomes occluded and this develops a condition of hydronephrosis. There may be a development of renal colic, intense pain in the lumbar region radiating down along the ureters into the limbs, bladder and perineum. During the paroxysm there is collapse with cold sweat, weak pulse, suppression of urine and paroxysm being either of long or short duration. After the paroxysm there is excessive urination, frequently hematuria.

Treatment - Here there are two objects to be aimed at - (1) Removal of the calculi and (2) correction of the function of the kidney. The treatment proper is - (1) relaxation of the muscles in the splanchnic area followed by direct treatment to the kidneys.

(2) Apply vibration over kidney area posterior and accompany this by deep pressure of the muscles along the spine outward and upward from ninth dorsal down through the sacral region.

(3) Flex limbs on abdomen and give an abduction treatment with sudden jerking movement at the end.

(4) Give the local treatment to the liver.

(5) If it is a uric acid case have patient use alkaline waters. Eliminate all nitrogenous food from diet, giving milk and fresh vegetables. In the phosphate type give largely a meat diet.

(6) If the calculi is lodged in the ureter attempt to manipulate downward along the ureter path. (a) Inhibit strongly the spinal nerves from tenth dorsal to first lumbar. (b) If the pain spreads down to the pelvis and lower limbs inhibit strongly in the lower dorsal and sacral regions. (c) Give deep inhibitory treatment over abdomen moving down along the ureter paths, then give the deep kidney treatment while the patient is exhaling. (d) Give strong inhibition over the inferior mesenteric, hypogastric and splanchnic plexuses. (e) Use hot fomentations. Give the patient hot lemonade to drink which is a stimulant to excretion.

Treatment of Hydronephrosis - Here we have a dropical condition of the kidney, due to vasomotor disturbance. Lesions are found at tenth dorsal to twelfth and corresponding ribs. (1) Relax the muscles in the dorso-lumbar region, treatment from above downward.

(2) Articulate through the vasomotor area, second dorsal to second lumbar.

(3) Apply strong inhibition over the sacrum, pulling up the limbs backward to relax the muscles and ligaments anterior.

(4) Raise the lower ribs, particularly last three.

This can be done with patient on back or sitting up.

(5) Treat the kidney locally, at same time give deep inhibition along the path of the ureter.

Floating Kidney - This may be either congenital or acquired, caused by a relaxed condition of the tissues around the kidney and of the kidney itself. In some cases it is due to the elongation of the renal vessels allowing the kidney to move about. It is found most commonly in the female sex after forty years of age, associated with a general relaxed condition of the tissues brought about by severe muscular exercise to the point of strain, mechanical injuries and tight lacing. There is a constant dull aching sensation, at times representing a paroxysmal intercostal pain, in some cases hysterical. The secondary symptoms are intestinal indigestion, palpitation of the heart, bladder irritation, asthmatic cough. The lesions in floating kidney are curvature in the lower dorsal and upper lumbar causing a prolapsed condition of the kidney attachments. Sometimes enteroptosis is a preceding condition.

Treatment - (1) Thorough relaxation of the dorso-lumbar region.

(2) Articulation of the dorso-lumbar region from above downward.

(3) Local treatment of the kidney. The right is most frequently involved.

(4) Attend to the portal system, regions of fifth to ninth dorsal. The tendency is to congestion.

(5) Give strong extension to the spine.

(6) Give treatment for enteroptosis even if it is not present. Apply pressure in the iliac region and flex the limb on the hand pressing upward.

(7) Apply strong inhibition at the second lumbar vertebrae, with the other hand manipulate the misplaced kidney toward its normal position.

Renal Degeneration - This is always secondary to some poisonous condition, either of drugs or foods. In the acute form the only noticeable symptom is the urinary condition in which we find the toxic albumen and urea. In the chronic form we find all of the symptoms of congestion with the symptoms of the condition causing it, as alcoholism, syphilis, gout, etc. Then we have the physical weakness, emaciation, scanty urine, large amount of albumin and casts.

Treatment - The condition is to be treated from the standpoint of congestion of the kidney, i. e., vasomotor and circulatory treatment. From the standpoint of the toxic condition.

Abscess of the Kidney - This is always secondary to abscess of the liver, appendicitis or Pott's disease. It is detected by symptoms of chill, febrile temperature, oedema in the lumbar region, swelling and pain noticeable in the lower quadrants of the abdomen.

Treatment - (1) Direct treatment over the kidney where the abscess is located, both vibratory and frictional treatment.

(2) Strong inhibition in the sacral region, pulling the limbs backward.

(3) Strong inhibition along the dorsal and lumbar spines on the same side as the abscess, followed by deep inhibition over the seat of the abscess anterior.

Cystic Kidney. This is nearly always congenital, the cyst being filled with fluid. It is diagnosed only by aspiration.

Sarcoma of the Kidney - Found principally in children representing a congenital condition. In severe cases there is intense pain, hematuria, neuralgia or sciatic pains, the tumor being palpable in the lumbar region.

Carcinoma of the Kidney - This is secondary to carcinoma somewhere else in the body and is attended with great emaciation of the patient.

In the treatment of these conditions - (1) Attempt to establish thorough elimination, flexing the limb corresponding to the tumor, first lightly and then more strongly.

(2) Stretch thoroughly the abdominal muscles on the same side as the cyst or tumor. Treat with the patient on side.

(3) Keep the lymphatic system from the lowest part of the body thoroughly stimulated.

Inflammation of the Kidney - acute and chronic. In the acute form it is an inflammatory process of the epithelium of the tubules produced by excessive cold, dampness, toxic agents and traumatic lesions involving the renal splanchnics. The inflammation is either local or general. It is generally secondary to some infectious disease, also in diabetes. It is also secondary to the use of carbolic acid externally or internally or phosphoric poisoning.

Pathology - In some cases there are no morbid anatomy changes. In most cases the kidney is hyperemic, engorged with bright red blood. On removing the capsular substance of the kidney proper it is soft. In the toxic type the glomeruli are affected.

There are two varieties of the acute - (1) Exudative nephritis. Here the disease is mild, changes being localized. Symptoms are frequent micturition, high specific gravity with little albumin. The onset is sudden with chills, pain in the back following the path of the ureters, febrile temperature, headache, restlessness, muscular twitching, nausea, vomiting, dyspnoea, increased pulse, high tension, hypertrophy of the left ventricle, puffing of the eyes and face. In severe cases the puffing extends to the limbs, pleura, pericardium, peritoneum, with symptoms of uremic poisoning and resulting in remic coma.

(2) Diffusive nephritis. Here there is overgrowth of connective tissue, hardening and thickening of the capsule of the kidney. The onset is sudden, uremia and dropsy being well marked, also scanty urine with high specific gravity, slight albuminuria.

In the chronic form there are three types - (1) The tubular which is the chronic form of the diffused nephritis involving the epithelium of the glomeruli and the connective tissue. The symptoms are albuminuria, dropsy, exudation. Sometimes it is secondary to scarlet fever, syphilis, tuberculosis, especially tubercular suppuration of the bones.

Morbid anatomy - in this case gives us the large white kidney in the later stages yellow. The tubes are filled with broken down epithelium, fibrinous casts, catarrhal deposits.

The second type is the small white kidney type. Here the epithelium degenerates, the connective tissue being overgrown. The kidney is rough and pale, the capsule thickened and adherent. The condition comes on slowly, beginning with dropsy, anemia, symptoms of uremic poisoning. At first the urine is scanty, later increased in quantity with a large amount of albumin. We also find hypertrophy of the left ventricle, oedema all over the body, progressive emaciation and general uremia.

The third type is the interstitial type without exudation. The kidney is small due to destruction of the tubules and of the kidney substance and an increase of connective tissue, arterial sclerosis, passive congestion symptoms.

Pathology - The kidney is diminished in size, the capsule enlarged and adherent to the substance of the kidney. The kidney substance is largely connective tissue, hemorrhage of the brain with coagulation of the blood with apoplectic symptoms. There is general loss of health without apparent cause, loss of memory, etc. The extremities of the body become dry and harsh with a tendency to traumatic symptoms, urine increased in quantity and acidity, low specific gravity, albumin, epithelium and casts.

Treatment - The lesions are the tenth dorsal to middle lumbar and the first four cervicals. These tend to weaken the epithelium, giving the toxins a field for lodging. The main point in the treatment is to regain control of the vasomotor system, secondarily to relieve the inflammation by lessening the vascular tension, thirdly to remove the broken down (condition) debris from the system by elimination.

(1) Relaxation of the muscles downward along the spine.

(2) Thorough articulation of the spine downward, paying attention to the dorsal and lumbar regions.

(3) Apply strong extension to the spine.

(4) Vasomotor treatment in the renal area.

(5) Correct the disturbance involving the ribs and stimulate the superior cervical ganglion.

(6) Give inhibitory pressure and vibration over the kidneys through the abdominal wall.

(7) Flex and rotate the limbs with abduction and a jerking movement at the end. Knead the muscles downward along the limb.

(8) Keep the skin and lower intestines open to prevent dropsical conditions.

(9) Treat the uremic symptoms by relaxing the the spinal muscles, inhibitory pressure over the spinal nerves, tenth dorsal to second lumbar. Quiet the convulsions of uremia by inhibition in the subocciput and neck downward. Dropsical conditions and tendencies are relieved by pulling up the intestines from the iliac regions. To aid this use the warm pack on the abdominal region. If the uremic symptoms are severe use this pack daily.

(10) Stimulate the pneumogastric nerves to increase the renal secretion.

(11) Treat the liver directly to increase the amount of urea eliminated. Keep the lungs stimulated to prevent bronchial obstruction and consolidation. Treat the heart at fourth and fifth D.

(12) Give patient absolute rest in bed, keeping them warm without any food for twenty-four hours or longer, thereafter a light diet eliminating all nitrogenous food as much as possible and giving the food in liquid form.

In the chronic exudative type the lesions are found at 12. D. and cervical vertebrae, because this type is a neurosis. In treatment the first point is rest in bed with dietetic treatment as given above.

(2) Persistent treatment to the splanchnics to stimulate vasomotion, this is visceromotor.

(3) Intercapular knee treatment.

(4) Liver stimulation and general circulatory treatment.

(5) Keep the lower intestines well stimulated.

(6) Keep the patient in open air as much as possible. Vapor baths may be used.

(7) Stimulate the lungs.

(8) Eliminate all meat from the diet of the patient and have patient take exercise freely.

In the chronic interstitial type - (1) stimulate the circulation of the blood and lymph to prevent deposits.

(2) Free the venous circulation first in the neck and then in the thorax, then in the lower extremities.

(3) Give the patient frictional treatment to the skin and hot sponge bath, alkaline water to drink, plenty of it so as to get the flushing action of the kidneys.

(4) Give inhibition along the spine to keep down the nervous excitability.

Pyelitis Nephritis - Suppurative nephritis, represents an acute catarrhal inflammation involving the pelvis of the kidney.

The suppuration extends through the interstitial substance. The inflammation starts from infection either in the circulation or in the urinary tract upward, sometimes it originates in embolism or traumatism or obstruction of the tubules, particularly when the obstruction is caused by a decomposed substance. Blood clots are sometimes the cause, particularly in infective endocarditis.

Pathology - (1) The m.m. of the kidney is congested, the pelvis of the kidney dilating. (2) the renal substance shrunken until there is formed a sac or pus. (3) in the tubercular type the ureters are dilated and the kidney substance is broken down, this setting up tubercular infection in other parts.

Symptoms - (1) Pain and tenderness in the kidney itself, the pain being an acute tearing pain, (2) high febrile temperature accompanied by chills, (3) anemia with pyemia, pus in the urine, pelvic kidney casts and epithelium, (4) in the tubercular type there is marked emaciation taking place suddenly.

Treatment - The lesions are found principally in the lumbo-sacral region.

(1) Relax the muscles along the lumbar and sacral regions and follow this by strong inhibition to control the pain in the same region.

(2) Local treatment over the kidneys, first by deep vibration and then deep kneading, extending the treatment down along the path of the ureters.

(3) Strong inhibitory pressure in sacral region, pulling the limbs backward to stretch and relax the lumbar, pelvic and abdominal muscles.

(4) Diet. Give light easily digested food, largely solid. This applies to all pyemic conditions, such as abscess, etc. in any part of the body hot fomentations locally are good, hot alkaline water to drink, and a hot vapor bath.

Cystitis - This is a catarrhal condition of the bladder with inflammation of the mucous membrane. Among the exciting causes we find retention of urine, retention of foreign bodies in the bladder or in any part of the urinary tract, unhygienic catheterization or injury by the catheter, exposure to damp or cold, injuries to the bladder or urinary system.

The lesions are found in the lower lumbar and sacral regions, especially in lumbar enlargement. Other causes are the use of irritating foods or drugs, especially in the treatment of prostatic troubles and strictures. Sometimes cystitis is secondary to infectious fevers or uterine displacements, abnormal pressure.

Pathology - (1) Hyperemia of the mucous membrane of the bladder, (2) congestive oedema, (3) retention of the mucous secretion in the bladder walls, giving the mucous walls a dirty grayish color, sometimes hyperemia and hypertrophy of the neck of the bladder, (4) In chronic cases the mucous membrane is thickened and sometimes covered with patches of a diphtheritic membrane.

Symptoms - (1) Sudden onset with high febrile temperature and great prostration of the patient, (2) accompanied by frequent micturition followed by localized pain and tenderness in the bladder, burning sensation along the ureters, alkalinity of the urine. In chronic cases onset is gradual, there is dull aching pain in bladder, urinary sediments, phosphates and pus corpuscles.

We have two types of cystitis - catarrhal and interstitial. Lesions are found in sacral region, nerve supply coming from the pelvic plexus in connection with first to fourth sacral nerves. Nerves concerned in retention of urine are the visceromotor n's from first to fourth sacral, the sensory nerves to the urethra in connection with third to fifth sacral. Stimulation of these sensory nerves causes reflex contraction of the bladder and evacuation of urine, therefore in simple case of urinary retention that is the treatment, strong inhibition at third to fifth sacral. Lesions are also found from second to fifth lumbar, micturition center. Nerve supply to m.m. and neck of bladder from second to fourth sacral.

Treatment - (1) Relaxing treatment from 8. dorsal down through sacral region. Relax and stretch muscles in lumbar and sacral regions, with patient on face pulling limbs upward and backward.

(2) Give local abdominal treatment along the path of the internal iliac vein, with deep steady inhibition over the hypogastric plexus to control the circulation or lessen the pain.

(3) Give gentle friction or frictional vibration over the bladder and at same time strong inhibition from first lumbar down through lumbar region so as to gain control of the nerves in this region which govern the blood circulation and bladder irritability not excitability.

(4) Stimulating treatment to the superficial circulation at the superior cervical ganglion, third and fourth dorsal and fifth L.

(5) Direct treatment of second to fourth sacral nerves.

(6) Keep the kidneys and intestines open.

(7) Give rhythmic treatment at the genito-urinary center - second and third lumbar, micturition, motor, automatic and voluntary.

(8) Keep the patient in bed to relieve pressure on the pelvic organs and to keep circulation at its minimum. Do not keep blood pressure down. Give light diet, no stimulating drinks, plenty of water to drink, wash out the bladder and lower intestines with warm water every second day.

Eneuresis - Urinary neurosis or incontinence of urine. Found in children. The cause is irritation to the sympathetic nerve fibers either of the bladder or urethral canal field.

Lesions are found at second to fifth lumbar. Secondary eneuresis is a reflex from some irritation in connection with external genital organs, as phimosis, prostatic enlargement and adhesions in connection with female genital organs such as hooded clitoris. The nervous systems controlling the bladder and ureter centers in sacral and hypogastric plexuses. The motor function as well as the sensory being in connection with the sympathetic system - any overstimulation of the sympathetic system excites the sensory nerve supply, e.g., patient lying on back causing pressure on the sacral nerves or developing extra heat as in children lying on a blanket. The use of a rubber sheet over the mattress or blanket will have a tendency to prevent this.

Aneuresis - Deficient urine of low specific gravity. The different types are - (1) albuminuria, in which we have a decrease of the fluid and an increase in the albumin element. Another type is (2) chyluria. Here there is a deficiency in the lymphatic function. (3) Hemoglobinuria, being disintegration of the blood.

(4) Lipuria, a presence of fat in the urine found in the defective functional conditions of the pancreas. (5) Pyuria, pus in the urine. (6) Hematuria, blood in the urine, particularly in inflammatory conditions of the kidney, e.g., calculi, gonorrhoeal infection, parasites in the urethra, strain of the bladder. If the hemorrhage is from the kidney the blood will be freely mixed with the urine, if it is from the ureters the blood will be in clots, if it is from the bladder the blood and urine will not mix and the blood will clot after passage, if it is from the urethra the blood will pass out periodically without the urine.

Treatment - Lesions are found in lower dorsal and lumbar regions, most common a posterior condition, sometimes sacral lesions, i.e., thickened and enlarged soft structures in that region.

(1) Thorough relaxation of the muscles in the lumbo-sacral region, also lower abdominal and iliac regions.

(2) Secondary to this give strong stimulation from the 8. D. down followed by frictional vibration or friction over the bladder or over the symphysis pubis.

(3) Stretch the muscles in the lumbar region by thorough rotation and flexion of the limbs.

(4) In case of prostatic enlargement treat the prostate gland per rectum, light pressure and kneading treatment.

(5) Strong stimulation of the superior cervical ganglion region to reach the general systemic circulation through the sympathetic system.

(6) Follow this by strong articulatory treatment in the vaso-constrictor area for the kidneys and bladder, i.e., lower dorsal and lumbar regions. This increases the blood pressure and arterial tension in kidney and bladder fields and increases the tonicity in the eliminative organs.

(7) In anuresis place the patient on the face and give strong treatment with the thumbs from the 8. dorsal down through the lumbar region, pressing in your thumbs between the vertebrae on both sides. With the patient on the back limbs flexed apply pressure over the kidney, gradually increasing the pressure and moving downward along the path of the ureters.

(8) Hematuria - Raise the ribs from the angles beginning at second and third ribs and passing downward. Give rotation and extension of the head and neck from the upper cervical region. In all kinds of hemorrhage. Give strong inhibitory treatment in the dorsal and lumbar regions upward.

(9) In lipuria pay attention to the cervicle and upper dorsal regions keeping the neck and interscapular area well relaxed. This is the lymphatic field, also look to conditions of 2-3 lumbar.

(10) In pyuria - give direct manipulation to the kidney and along the path of the ureters so as to cause perfect elimination. Apply irrigation to the bladder.

(11) In all of these urinary neurosis diet the patient lightly especially at the evening meal and give them fruit and vegetables to eat. This applies to all cases of urinary trouble that is secondary to other conditions.

Diseases of the Rectum.

There are three conditions to take account of here - (1) Proctitis or catarrhal inflammation of the m.m. of the rectum and anus. This is due to continued chronic inflammation. We have the acute and chronic form. In the acute the onset is sudden, inflammation traveling through rectum from some other part of the alimentary tract. In the chronic form there is enlargement and thickening of the m.m.

Symptoms - localized pain, burning sensation with tendency to frequent defecation, rectal tenesmus, stools consist of mucous, desquamated M.M. The pain radiates from the rectum to the pelvis and settles in the small of the back. Sometimes it is associated with enlargement of the prostate gland, uterine prolapse and female or intestinal hemorrhage.

(2) Rectal carcinoma. Carcinoma somewhere else in the body. begins with feeling of discomfort in the rectum, followed by steady aching pain in the rectum then around the hip joint and then in back. Always associated with constipation, hemorrhage and muco-purulent discharge.

(3) Anal conditions, e.g., anal prolapse, eversion of lower part of rectum associated with prolapse. Found in anemic children and in old people. Anal fistula develops either in complete or incomplete form. Represents formation of abnormal tube or tubelike opening through the fibers of the sphincter ani muscle. If complete there is external and internal openings. Ulceration is detected by discharge.

Treatment - Here use the speculum with patient on side and limbs flexed on abdomen. The object of rectal treatment is to - relieve inflammation and to establish tonic condition of m.m. and the muscles. (1) Rectal treatment should not be given oftener than once a week.

(2) Treatment given by passing index finger into rectum, palm downward. Use vaseline on finger. After insertion turn palm upward along hollow groove of coccygeal region, then move finger from side to side to free action of blood. At this point use the finger internal and thumb external to move the coccyx into its normal position or articulate when rigid.

(3) In dilating sphincter use speculum or dilator to stretch muscle walls uniformly in all directions. Apply force gradually.

(4) Treat prostate gland locally when enlarged. Treat around gland with pressure on gland applied lightly, nerves of glands lie between gland and levator ani, secretory coming from sacral region, direct sensory fibers from tenth to twelfth dorsal, fifth lumbar and first to third sacral.

(5) In tenesmus always relax muscles over sacral foramina to free nerve force. In dysentery relaxation of sacral nerves.

In proctitis p there is preceding congestion and decomposition of blood element, terminal sympathetic and motor nerves being exposed and separated from one another, covered over with mass of disintegrated matter. Hence there is lack of coordination between the two nervous systems.

(1) With patient on side move muscles out and up from G. D. down to coccyx, giving thorough treatment in the splanchnic area and wherever there is tenderness.

(2) Treat locally the abdomen especially liver and stomach.

(3) Flex limbs on abdomen, holding these in flexion for a few minutes then bend the limbs back, giving pressure over the lumbar region to secure relaxation posterior.

(4) Manipulate rectum gently, using dilator, to aid this use hot irrigation. Give patient hot water to drink and treat constipation.

(5) Pull up the pelvic viscera from the iliac region.

In the treatment of anal prolapse - (1) Place patient on side with limbs flexed. Locally give treatment to smooth out walls of rectum, pressing upward, then manipulate the muscles internally as far as possible.

(2) Treat the spine from 8. dorsal to coccyx, moving the muscles out and up articulating the vertebrae.

(3) Irrigate the intestines daily with hot normal salt solution.

(4) In fistula manipulate the muscles deeply around the fistulous opening and treat the nerve supply from the spine and keep up antiseptic conditions.

(5) Treat the cause of constipation, if it is aggravated use very hot irrigation.

Diseases of Muscles and Bones -

Muscles act as support and framework of the body, muscles act in connection with bones for movement. Mobility represents the great power which muscles exert in the movement and locomotion of the body. This muscular power depends on the contraction and relaxation of the soft tissues so arranged in the body so as to pull in all directions. The muscles contract and relax under n's control regulation and yet the muscles have in themselves an inherent power or irritability that determines mobility. Diseases of the muscles take account of the muscles only from the standpoint of interferences with this inherent mobility. All other diseases of the muscles will fall under the head of nervous diseases. Muscles like bones may be displaced temporarily or permanently contracted or relaxed, or the muscles may be diseases with the result that they fail to contract or relax and this interferes with the muscle function. It is still an open question in the osteopathic field whether the contraction or abnormal relaxation of the muscles excluding ligaments is not the true cause of every bone lesion. Different muscles in the body have their own distinct attachment in connection with bone, cartilage and ligaments, indicating the possibility of diseases originating in connection with the muscles and their attachments. All of the muscles differ in size, shape and structure so that in diseases like atrophy, hypertrophy each muscle must be taken by itself. In most cases the primary lesion represents but one condition which a bony lesion can be primary, viz. in case of traumatism whether produced directly by strain pressure, accident, in all other conditions the muscle is primary.

There are two distinct muscular diseases to be discussed in this connection - (1) Myositis or inflammation of the muscle, (2) Myotonia Congenita, commonly called Thompson's diseases.

The most common causes of pressure in connection with diseases are contracted muscles. These are nearly always due to changes in the fluid elements of the muscles, the results of cold or heat.

Contraction of the muscles fibers acts as an impediment to circulation and gives results, such as lowering of temperature. Cold increases contractions, sometimes up to the point of paralysis after which we get relaxation. In relaxation there is an infiltration of the fluids resulting in disorganization, degeneration, precipitation of acid, such as are found in the different rheumatic conditions.

Myositis - Inflammation of the muscles, symptoms are pain, swelling and loss of power to move with cramps. If general it begins in the lower limbs, gradually passing to other parts of the body. Muscles become hard and painful on pressure, sometimes rigid with local oedema of the skin, death often results when this reaches the respiratory muscles.

First condition to be looked for is swelling of muscles of the lower limbs due to muscle fiber infiltration with oedema of the subcutaneous structures. This is frequently followed by an erythematous eruption on the skin without any apparent cause. The muscular inflammation may be associated with acid accumulation or secondary to such conditions as trichinosis.

Treatment - (1) Attention must be paid to the muscular system in general, first always use the palm of the hand. As nearly as possible work with palm of the hand or fingers at right angles to the direction of the muscle fibers.

(2) Tension applied in the direction of the muscles or at an acute angle towards the muscles in connection with bone or ligament attachment, is the best method of relaxing the muscles.

(3) In dealing the spinous muscles spring the spine and manipulate the muscles outward and upward from the spinous process.

(4) In dealing with the muscles especially in myositis never rub or knead the muscle, but always move muscle by muscle or muscle upon muscle, the only exception to this rule is in the case of stimulating the spinal muscles with patient on face or back.

(5) Strong inhibition along the spine is the only means we have of controlling the pain and inflammation of myositis.

Myotonia Congenita or Thompson's disease. This is a hereditary disease or condition in which we have cramping and spasmodic condition of the muscles, is found when an attempt is made to move the muscle. It begins in childhood and in some cases it is found as a family characteristic chiefly in the male sex.

Pathological condition is represented by the increase in the muscular, vascular or interstitial substance with multiplication of the muscle fibers.

The first symptom is commonly an affection of the diaphragm interfering with respiration. (2) There is stiffness of the muscles in the other field on attempting voluntary movement. The voluntary movement takes place slowly and relaxation is also slow, then the muscle becomes relaxed and fixed, especially when put in motion after fixing. If activity is kept up the rigidity gradually passes away, coming on again, especially in connection with walking. It is more noticeable in the lower limbs, the leg becoming stiff. In advanced stages it is always aggravated by cold or damp or by emotional conditions. The muscles tend to atrophy, but the muscles are irritable, very slight stimulation producing chronic contraction.

The reflexes and sensations are not affected and there is no evidence of nervous condition. One method of testing is the Erb method of myotonic electric action. The contraction takes place slowly and relaxation takes place also slowly then the electric current is applied and gradually increased, a vermicular movement taking place from positive to negative in the intermediate muscle substance.

Treatment - Lesions from sixth to twelfth dorsal, and in lumbo-sacral region. This condition represents a vasomotor neurosis, hereditary in nature. In treating * (1) relax all the muscles along the spine, especially deeply in the dorsal and lumbar.

(2) Spring the spine in the dorsal and lumbar regions, especially fourth and fifth dorsal and sixth lumbar.

(3) Stimulate the sympathetic system by rectal dilation and by strong stimulation in the sacral region.

(4) Treat the muscles affected locally, the lower limbs, face, neck and tongue.

(5) Give thorough extension to the spine.

(6) Flex the lower limbs on the abdomen, then rotate and abduct.

(7) Place the thumb over the first dorsal with patient on side, then raise the arm above the head, push the muscles upward while the arm is lowered, continue down along the dorsal to the lower edge of the scapula. Do the same things with the limbs while applying pressure over the lumbar region.

Bones and articulations - Bones represent the foundation of the body. About two hundred of these being adjusted to one another to articulate upon one another, producing absolute free or limited movement or absolute immobility. The most important part of the bone is the tuberosity, for muscle attachments, the groove in connection with ligamentous structures and the opening through the bones for the entrance and exit of nerves and blood vessels.

Any change in any of these three points may produce obstruction to the bone function. The dislocation of the bone is most important. All muscle fibers are elastic, while the bones are rigid, hence the bones are held in place by the muscles and ligaments, the contraction of muscle fibers giving tension to ligaments and the ligamentous opposition representing the limits of the bone mobility. The possibility of a dislocation is demonstrated by curvature and these take place by the gradual shrinkage of the muscle fibers. Every bone of the body may be distorted or twisted and this will interfere with normal relations. We may have a partial or complete dislocation or a diseased condition of the bones. Osteopathically dislocations represent inequalities, especially in the arrangement of the vertebrae.

The word dislocation has been used indiscriminately to include any change of position of bone in relation to bone. Dislocation is largely limited to the larger joints, like hip and shoulder. As limited in its use in surgery luxation represents a displacement of two bones or the articular surface of one displaced from its relation to the articular surface of another.

Subluxation represents a slight movement in connection with articulation noticeable by the development of pain, tenderness, temperature, etc., subluxation therefore is limited entirely to

vertebrae and ribs. The most common of that is the atlas because it is the most movable vertebrae in the column, freely movable because ligaments and capsules are loose, the strength being entirely in the anterior, posterior and lateral ligaments. Dislocation of the atlas is possible, but this would cause instant death as it would impale the medulla.

In relation of the atlas and axis we have the most complicated articulation in the body. The one most commonly found is subluxation in which there is rotation between the two vertebrae. Under normal conditions this is kept in check by the action of the ligaments. Subluxation of the spine of the axis takes place through rotation caused by the muscular contraction producing a subluxation of the articular processes of the atlas and axis. Complete dislocation of the other cervicle vertebrae is found in connection with fracture or the tearing of the intervertebral discs, causing great pressure on the cord. The most frequent subluxation is a slight twisting of the vertebrae caused by intense muscular contraction, as rotation of the spine. If the contraction is on one side it will rotate the dorsal vertebrae to the limit of its normal movement and keep it there, producing a subluxation. Hence, the muscles are primarily affected and if the muscles continue intensely contracted there is a subluxation. If the opposing muscles exert an influence on the articulations it will make the articulation normal, because a normal joint contains synovial membrane, it will also tend to bring the joint back to normal. When there is displacement however it keeps up the subluxation as the contracted muscles pull to one side only. This is the principle applied to subluxations of the ribs in their relation to the vertebrae.

In treating the bones we use all the principles of physics, especially that of leverage and the principles applicable to systems of movable joints.

(1) In treating use the muscles as a means of moving the bones, because these are the natural attachments.

(2) Articulate the bone in connection with natural articulatory processes, viz. muscles, ligaments and synovial surfaces and fluid.

(3) Apply pressure to the bones at the point of least resistance in order to prevent the breakage of the bones.

(4) In dealing with the spine place the patient on face or side and use the arms as a lever, lifting the arm above the head with one hand while the other hand catches underneath the spinous process, springing the spine towards the operator. This relieves the tension on the deep structures and restores free action of the bony parts. This is the principle to be applied in all cases of curvature, lateral deviation, separated or approximated vertebrae.

The same action may be secured in the lower part of the spine by flexing the limbs on the abdomen and pulling from underneath the spinous processes while applying pressure against the flexed limbs.

(6) With patient on side place one forearm against the iliac crest, the other against the shoulder, pressing these two points apart while the hands spring the middle region of the spine towards the operator. This produces stretching with lateral force.

(7) In dealing with all osseous or osseo ligamentous lesions of the spine - (a) first exaggerate the lesion in order to increase the displacement; (b) then apply extension still keeping up exaggeration and (c) apply pressure so as to force the part back into its normal position. This treatment relieves tension, loosens adhesions and gives a natural elastic recoil.

(8) In dealing with fifth lumbar - (a) flex limbs and hold with one hand tightly in fifth lumbar region, with other hand lifting the limbs and pelvis in the flexed position so as to throw the weight on to the rotation movement. (b) Push the body of the patient over the end of the table so as to rest sacrum on table, stand between the limbs of the patient holding one in each arm and then move by rotating the pelvis on the fifth lumbar. (c) Close the hand and place it close to the fifth lumbar on one side of the spinous process, then flex the limb on the same side and give external rotation, stretching out the limb quickly so that the weight on the body is thrown on the fixed point. Give the same treatment on both sides.

(9) In lesions of the atlas - (a) With patient on back stand at head of patient, hold the head between the hands with one finger or thumb on the transverse process on either side, then exaggerate the lesion by moving the head in the same direction. Then apply traction and rotation in the opposite direction while applying firm pressure on the process of the axis on side of lesion. (b) Stand at side of patient, place one hand on forehead the other hand below the skull at the region of the lateral arch of the atlas, then exaggerate, rotate and apply strong pressure. (c) With patient sitting stand in front of patient, place one knee beneath the chin and grasp with the hands the sides and back of head then exaggerate the lesion and apply traction, pressing in the opposite direction. (d) With patient sitting put arm around head, bend of elbow falling beneath the occipital protuberance and the hand beneath the chin, then forcibly raise the head so as to move the head on the spine while the free hand presses on the spine in whatever direction we want the movement. The axis is generally misplaced laterally. To correct relax the tissues around the transverse and articular processes, then exaggerate, rotate and press into position.

(10) In dealing with interscapular area most common displacement is anterior. Displacement of some of the first six dorsal vertebrae. In addition to this intense contraction the muscles attached to these vertebrae is found. It is of no service to use the arm as a lever, because the arm will not affect the muscles below the first the third layers and all the muscles that control the internal mobility of the spinal vertebrae are in the fourth and fifth layers, i.e., the muscles of these layers are those that keep the vertebrae misplaced. The muscles in the third layer affect the articulation of the vertebrae, therefore in dealing with the first six dorsal vertebrae, (a) pull the head forward as far as possible and push it on the neck downward, anterior. This separates the spine and relaxes the muscles of the fourth and fifth layers. (b) With the head and neck in this position as soon as the muscles are relaxed the cervical vertebrae with the head and the upperdorsal vertebrae act as a flexible lever so that by placing one hand on the head and the other on the spine in the dorsal region we can rotate the

head and the cervicle and dorsal spine so as to affect any of the six dorsal, placing the palm of the hand or fingers below the dorsal vertebrae you want to move.

(12) In subluxations all the muscles are first to be attended to. All the mechanical conditions in and around the affected part helping to maintain the subluxation and restore to normal. A subluxation therefore represents altered vital activity, an uneven distribution of the vital force, therefore in dealing with a subluxation of the vertebrae - (a) try to secure complete relaxation of the muscles all over the body as well as local muscles and the viscera, and if possible the patient to relax voluntarily. (b) All movements resorted to should be directed the muscles as these affect or react on the articulations and in proportion to the quality of muscle action the reduction of a subluxation is possible. (c) Unless muscles are relaxed it is impossible to articulate, therefore after muscle relaxation articulate the vertebrae, separating the articular surfaces by extension. Articulation has the most powerful effect upon a joint and its vital force because the articulatory sensations are those arising from the equilibrium of muscles opposing one another or the ligaments and membranes around the joint. (e) In order to replace vertebrae by exaggerating the lesions we must stretch the deep muscles and by bringing the pressure on the same side as the exaggeration we separate the spine, increasing the field in which the misplaced vertebrae can move, then while pressing with the fingers pull the other arm around the patient and push over to the other side. The lesion will be corrected by moving the vertebrae from the point of exaggeration to the normal position.

Ankylosis - Of this there are two types, viz. tru ankylosis, depending upon articular and inter-articular congestion with resulting thickening and adhesion. This may result in - (a) in a perfect or complete ankylosis in which case we have a fibro-ossous deposit uniting the articular surfaces. This is found as a sequence of rheumatism, especially of the arthritic type. (b) It may be imperfect or incomplete, giving us restricted articulation in connection with fibrous adhesions between the joint surfaces. In false ankylosis there is contraction and a soft adhesion. If it is from injury or disease the joint loses its function and becomes stiff. According to DaCosta the complete ankylosis is always osseus, the incomplete fibrinous and the false extra-articular. This is not correct, because an extra-articular ankylosis is not ankylosis at all, although there may be restricted movement of the joint, hence false ankylosis must be intra-articular.

Among the causes we find inflammation in and around the joint resulting in a new tissue formation, the sequence of a septic inflammation, generally fibrinous. The bony surfaces unite only if injured or diseased. In the false ankylosis it begins in contraction of the tissues around the joint resulting from over-contraction. The cause is nerve obstruction or irritation or loss of nerve stimulation allowing the opposing muscles to gain absolute control of the articulation. Sometimes it is the result of contraction following the healing of wounds, ulcers, abscesses. In this case there may be fibrinous degeneration. The fibers may adhere as

result of serous exudation. Contraction may also result from rheumatism, tuberculosis, gout, syphilis. The spine should always be examined at the point where the nerve corresponding with the articulation makes its exit. The same conditions that produce pain may produce ankylosis so that traumatism is one of the most common causes of ankylosis.

Treatment - Osteopathically ankylosis represents vasomotor disturbance and the vasomotor condition is really a lymphatic condition, hence the lesions that we find are vasomotor or lymphatic.

(1) In case of osseous ankylosis surgical treatment is called for.

(2) If ankylosis is result of septic inflammation it should not be broken up, because of the danger of re-infection of the joint or of the rest of the body.

(3) The cases that can be treated successfully are the fibrinous or the so-called extra-articular. (a) Manipulate the muscles thoroughly up towards the affected articulation, stimulating the circulation and the nerve force to the local parts; (b) Give gentle flexion and extension to the joint not oftener than once a week, gradually increasing it every day; (c) Try to correct or remove the primary cause. In some cases it is T.B. ankylosis being nature's method of compensating for disease by destroying the joint. The most common point of ankylosis is the knee and hip, representing point of weakness for the lodgement of tubercular germs; (d) Examine the spine, especially the sacro-iliac region and also the hip for subluxations causing pain in the knee joint because of irritation of the obturator nerve. The pain prevents movement and this gives rise to malnutrition, slow circulation, muscle degeneration and atrophy. Pain is therefore nature's attempt to save the joint and prevent the spread of infection. In treating ankylosis try to get the pain under control.

Synovitis - Inflammation of the synovial membrane of the joint. May be acute or chronic, usually associated with T.B. primary infection perforating the joint and depositing between the joint surfaces. This causes a diffuse tubercular inflammation. When the synovial membrane is the seat of this diffuse tubercular condition the tissues undergo pathological changes such as we find in T.B. also the membranes. This produces granulation tissue, the articular membrane and cartilage being perforated by the granulation changes, tubercular matter being deposited. In some cases the synovial membrane is only slightly thickened, the vascular surfaces increasing at the expense of the articulation. Later, thickening accompanied by granulation results in cell proliferation in connection with the synovial membrane. This may go on to tubercular formation or may develop into a typical cold abscess. Here the tendency is to form a center for caseation and liquefaction, the tissues being broken down, the articular surfaces becoming degenerated, softening of bone, cartilage, etc., taking place.

Symptoms - In the acute form we find intense pain and tenderness, atrophy of muscle, inflammatory febrile temperature. In the chronic form the inflammation is very slight, the joint weak, the membrane thickened and hardened and venous congestion which may result in fatty degeneration and ankylosis.

Hydro-arthritis - Here we have serous effusion into the joint, almost always the knee joint. It is sometimes called white knee

and is commonly found in children of the strumous diathesis and in those accustomed to excessive pressure on the knee. It begins with pain followed by swelling, tenderness and slight lameness. This gradually increases, the knee becoming flexed. Later the flexion gives place to softening of the ligaments, backward displacement with outward rotation of the tibia or femur. In the later stages abscess formation, either external or internal in the joint and later it may become ankylosed.

Treatment - (1) Place patient on face, manipulate muscles out and up through the lower dorsal, lumbar and sacral regions, looking especially for points of tenderness.

(2) Give flexion of the limbs as far as patient can stand, at same time strong abduction in extending the limb.

(3) Draw limb backward while applying strong pressure on the sacrum, pulling at the knee.

(4) In the knee joint manipulate the limb freely, rotating at the hip and knee and freeing the sacro-iliac articulation.

(5) Manipulate the muscles from the hip to the knee and from the knee to the foot.

(6) In the shoulder joint - (1) Place patient on sound side and manipulate muscles outward and upward through the cervicle and dorsal regions and around the lower border of the scapula.

(2) Press arms and press against the arms while pushing up the shoulder, loosening the muscles around the shoulder and scapula.

(3) Pull out muscles towards the acromian process, then flex and rotate the arms steadily in all directions.

(4) Extend the arm by pushing against the axilla with one hand and pulling the arm at the wrist.

(5) Where the elbow joint is involved direct treatment to the elbow joint and the muscles above and below the joint.

(6) In hydro-arthritis treat the same as in synovitis of the knee, in addition stimulate the lymphatics and skin centers to the lower part of the body trunk and lower extremities. Also stimulate directly the venous blood circulation at the saphenous opening.

Pott's Disease. - This is called spinal osteitis or spinal caries. This is considered a surgical case marked by progressive inflammation in connection with the intervebral bodies or discs. It is generally chronic leading to partial or complete dislocation of the vertebrae and terminating in a regular ankylosis with marked posterior deformity. It is considered tubercular involving the bones. It is commonly found in the cervicle and lumbar regions.

Among the symptoms we find restlessness, fatigue, on the slightest exertion or irritability. If found in the cervicle region the head is bent on one side and there is pain in the neck. If in the lumbar region the patient bends forward to save the spine and there is pain in the abdomen. There is also paralysis of the lower extremities and a posterior angular curvature.

Treatment - (1) Give patient rest in bed to secure resolution of the osteitis. Relax muscles along the spine in the diseased area manipulating gently and freely.

(2) Give gentle and thorough extension to the spine to relax the tetanized muscles.

(3) Carefully articulate vertebrae around diseased point to

stimulate normal circulation and to set up nutrition and repair. Lowered vitality is an important condition, therefore general stimulating treatment must be given.

(4) In some cases it may be necessary to use some orthopedic devices to keep up extension of the parts to remove pressure and a low repair to go on.

(5) Be careful in manipulating the spine and be sure to separate the vertebrae in order to free the circulation and relieve impingements on the nerves.

(6) If part of the body of the vertebrae is destroyed it is impossible to overcome the deformity. In this case try to get the diseased vertebrae back in normal position. If it is in the dorsal region pay attention to the rib treatment, treating each rib separately.

(7) After the vertebrae are corrected as much as possible try to limit the caries and promote ankylosis by rest, nutrition, and local immobility.

(8) Give the patient plenty of good food and fresh air. If it is necessary to produce ankylosis use some orthopedic apparatus to promote rigidity.

Typhoid Spine - This occurs as a sequence to typhoid fever. The incorrect form of the spine in the lumbar region. There is marked tenderness and an increase in temperature. Pain is intensified by movement, especially in the lateral direction. Deformity begins in vertebrae lesion resulting from or produced by typhoid fever. Secondary to this there is a weakening of the muscles, ligaments and cartilages. Sometimes this condition persists through life. We must be careful to differentiate the typhoid spine from lumbago, lumbago being more of a neuralgic condition.

Treatment consists of rest in order to allow the muscles and ligaments to become as much relaxed as possible.

(2) Correcting the derangements of the vertebrae.

(3) Correcting the condition of the muscles and ligamentous attachments along the spine to prevent tetanic condition of muscles.

(4) Diet as in Pott's disease.

Coxalgia - Literally this means a neuralgic condition of the hip joint, technically however, it is the name given to hip joint disease. Here we have a disease involving the structure of the joint. There are different types of the disease - (1) Femoral, starting in the upper epiphysis of the femur, (2) Acetabular, starting in the floor of the acetabulum, (3) Articular, beginning in synovitis. Starting point may be tubercular infection in connection with a traumatism. It may also be non-tubercular, following typhoid fever, usually involving the left hip. There are three stages in the course of the disease - (1) Inflammatory - pain beginning in the knee, tenderness being present on the slightest movement of the femur upward or on pressure inward on the trochanter. There is a tendency to save the limb by fixation in connection with flexion, extension and rotation of the limb. (2) Effusive stage - here the pain becomes intense, in the hip joint with fixation, swelling, atrophy around the joint and the lengthening of the limb secondary to the curvature of the spine. (3) Suppurative stage - here we

have flexion in adduction, increasing by crossing one thigh over the other. There is elevation of pelvis on diseased side, shortening of the limb due to wasting of the limb and the curvature of the spine. In the femoral type pain is marked at the knee. There is shortening and dislocation. In the acetabular type there is a tendency to abcess pointing taking place along the Poupart's ligament. In the arthritic type there is acute pain, swelling and inflammation. The most common cause is a dislocation of a hip joint which may be produced by displacements of the tissues around the joint cutting off nutrition and exposing it to infection.

Treatment - The condition is secondary to dislocation or relaxation following or accompanying infection. The case requires to be treated from the constitutional standpoint so as to build up the constitution of the patient to allow resistance to local action. (1) Relax the muscles along the lumbo-sacral spine, also in the pelvis and around the hip joint.

(2) If there is T.B. in the case do not rotate the limb and do not apply articulation.

(3) Look to a possible dislocation of the hip and treat it as such if present.

(4) Stimulate the nerve supply to the limb by articulation in the trophic center area.

(5) Manipulate the limb carefully giving deep treatment over the iliac region to catch the blood vessels. Also give general treatment to reach the blood and lymphatic systems.

(6) Flex the limb as far as possible and fold the limb backward while applying strong pressure over the sacrum.

(7) Give strong inhibitory treatment downward along the spine to produce relaxation to check pain and prevent the extension of the condition into the spine.

Congenital Dislocations of the Hip - These may be intra or extra-uterine. In some cases there is a history of neurosis, scrofula, rickets or hereditary syphilis. The symptoms are inability to use the limb child begins to walk.

The differential points between congenital dislocation and coxalgia are - In congenital dislocation you have tendency to shortening of the limb and the dislocation is always upward and posterior. In coxalgia there is evidence of disease in connection with the head of the femur, as periodic febrile temperature. In the first stages you have a lengthening of the limb, then a shortening

Treatment - The old method was surgical, i.e., by open incision and stitching the structures together. Lorenz later introduced the bloodless method. The difference between the Lorenz and osteopathic method is only in the length of the time preparatory treatment. In the Lorenz method there is no preparatory treatment.

In the osteopathic treatment there are three points to be remembered - (1) Preparatory treatment. (a) To establish nutrition in the tissues around the joint the same as in coxalgia; (b) To stretch the muscles and ligaments by gradual relaxation and extension; (c) To build up the constitution of the patient by treatment. All the muscles in the affected limb are to be stretched, especially the abductor muscles of the thigh and the flexor muscles of the thigh and the flexor muscles below the knee and give

ligamentous stretching or extension by rotatory treatment, at the same time traction is applied to the limb. Preparatory treatment should be applied until the head of the femur, by application of strong traction can be almost replaced without pain.

(2) Setting of the hip. (a) Actual replacement of the femur in its normal position. This is done under anaesthesia as profound as possible. In the process of reduction there are four stages of manipulative treatment - (a) forced flexion of the extended limb. The large toe is to be carried in a circle around the head of the patient and then placed in extension upon the table. The extended limb is then completely abducted. The strongest traction is used in giving this treatment. (b) When head of femur is free from pressure of soft tissue attachment and all muscles so stretched that the head of the femur can be carried, first below and then in front of the acetabulum the reduction is completed by a slight jerking movement given from the knee. (c) The head of the femur is then ground into the head of the acetabulum by an irritating rotation to stir up an inflammatory process in order to cause fibrous formation for ligamentous attachments. (d) The limb is still kept in an abducted position with strong traction and a plaster cast is applied. The leg is abducted to a complete right angle and traction is applied to the limb and it is rotated outward and plaster cast is applied with cotton underneath. The idea is to make the cast around the trunk of the body and it is then applied down below the knee and filled in from below the knee to this point upward. Apply the cast upward along the spine as far as the ribs posteriorly. After the cast has been on the patient for some time, that is, when patient is able to get up and move about the cast is trimmed up above the knee to give freedom to the limb.

(3) After treatment - During the time the patient is wearing the cast alcohol is applied to the skin externally. Put it in at an upper point and let it run down. If the patient complains of irritation of the skin olive oil is applied in the same way. The cast usually remains on the limb from four to eight months. After the cast is removed the treatment should be continued. Give manipulation of the muscles, slight rotation of the limbs, gradually until the limb is fully extended. The patient should exercise as much as possible, especially walking. Running is contraindicated until free use of the limb is obtained.

General treatment - Build up the blood system of the patient. While the patient is in the cast attention should be paid to the diet on account of the liability to produce skin eruption. Constipation requires proper attention.

Sprains. - Here we have primarily a twisting of a joint or articulation. Secondary to this the soft parts of the joint or articulation are stretched, torn, ruptured or tightened. This involves the muscles, tendons and ligaments and secondary to the blood and nerve supply. The general symptoms are pain shooting into and around the articulation, radiating generally as a sharp cutting pain along the muscles, tendons and ligaments. This is followed by swelling, sometimes effusion, extravasation of blood with blue or black discoloration. This takes place both in and around the joint.

Sprains may be found anywhere in connection with any joint or articulation of the body. Most commonly it is found in the extremities. Next it is found along the spine. Spinal sprains being due to straining of some particular part of the spine. Most frequently it is found in the cervicle or lumbar regions, the ligaments being stretched sometimes to the point of tear. In a slight twisting it usually takes place in connection with a wrench, sometimes the muscles being detached or torn. In the larger joints the twist is usually simple, consisting of the tension of the ligamentous attachments, the ligaments being abnormally stretched. There is generally tenderness around the region affected with a feeling of weakness. Frequently the nerves are stretched and the attempt to move stirs up sensitiveness above and below the point of lesion. The most common point of sprain in the spine is the junction of the cervicle and dorsal, dorsal and lumbar and sacral regions. The fibrous bands and muscles along the spine suffer most. Frequently we find secondary to sprains a condition almost identical with muscular rheumatism manifested by a peculiar aching with tenderness of the skin. This is due to passive congestion locally, waste products accumulating and irritating the nerves. This is found almost exclusively in the lumbar region on account of the large mass of muscle tissue and the straining put on the body at that point.

Treatment p A sprain represents excessive tension with ligament, muscles and tendon. (1) Relax the muscles and ligaments around the affected area, beginning at a point at a distance from the sprain and relaxing towards the point of sprain.

(2) If there is pain accompanied by creeping or crawling sensation apply strong inhibition at the corresponding spinal area. The sensation is an indication of oncoming paralysis.

(3) Knead the muscles in and around the affected area, kneading towards the point of distance tension.

(4) Moullin recommends a repetition of the movements that took place in producing the sprain as nearly as possible at the point of pain and tenderness, e.g., at the same point in the back make the patient stoop as low as possible and while applying pressure at the point of tenderness straighten up the spine quickly. This is done by pulling the patient into whatever position will relax the muscles most thoroughly around the injured point and while pressure is applied by the hand or finger make the patient move to another position.

(5) Put the body of the patient in position so as to the sprained part will be stretched and hold in this position while the body is moved into its normal position.

(6) In all types of sprains the frequent use of hot water, either in the form of fomentations or a local hot bath should be applied locally at frequent intervals.

Dislocations.

Technically dislocations are limited to the separation of articulating surfaces, particularly in the joints.

Upper extremities - At the wrist we find the radius and ulna thrown backward, forward and outward. As the radius is more fixed than the ulna the most common dislocation is a forward or backward one of the ulna. Here we have rigidity showing itself at the elbow joint and pain at the shoulder joint, indicating incoordination of the ulna and radius at the wrist. In the fingers the thumb is the most frequent dislocation involving a carpal or metacarpal dislocation.

In treating a dislocation of the radius, ulna, carpal or metacarpal bones the best method of reduction is by simple pressure. In the metacarpal and phalangeal displacements if the thumb is displaced backward give strong hypertension followed by slight flexion and rotating, rotating the carpal articulation and applying pressure on the head or tip of the bone. If it is forward apply traction and pressure with the head or tip of the bone. If it is forward apply traction and pressure with strong flexion and then repeat the pressure.

In dislocations of the wrist the best method of reduction is by the application of simple traction.

The elbow joint - Here we get a number of varieties. (a) Radius may be dislocated backward; radius may be dislocated forward. This is the common type, the radius being thrown into the groove above the external condyle of the humerus. Here the forearm is bent and cannot be brought to a right angle and remaining between the pronation and supination; the ulna may be driven backward producing great deformity, the forearm and arm being twisted inward, the olecranon process being thrown outward, the forearm in this case cannot be extended and flexed to more than a right angle. Radius and ulna may be dislocated backward. Here the joint is changed and movement is lost, ulna and radius being thrown out posteriorly on either side of the olecranon, leaving a groove due to the throwing out posteriorly of the radius. Here the hand and arm are in supination and cannot be put in pronation. Radius and ulna may be dislocated laterally, the ulna being driven either into the internal or external condyle. Here the joint is twisted, the forearm flexed and pronated. If the external, the radius produces a prominent bulging, if the internal, then there is marked bulging at the inner side of the joint.

Treatment - In reducing elbow dislocations have patient in the sitting posture. Stand at the side of the patient with one foot resting on the stool, place the knee in the bend of the elbow and give gentle pressure inward, and apply extension to the radius. Turn the forearm bent upon the wrist away from the radius, then bring traction upon the radius and make extension upon the head of the radius with pressure on the head of the bone above. Take hold of the wrist of the patient, put the knee on the inner side of the elbow, bend the arm and apply pressure on the dislocated bone so as to separate the coracoid process of the ulna from the posterior process of the humerus, applying the pressure of the knee upward. In this case the arm is gradually bent so that the bones may slip into place.

Shoulder. - The head of the humerus may be dislocated in four different ways - (1) downward into the axilla. Here the arm is lengthened and there is a hollow groove underneath the acromian. The shoulder is flattened externally, the elbow is thrown out at the side and cannot be drawn tightly into the thorax. The head of the humerus can be distinctly felt in the axilla by feeling underneath the arm. The hands cannot be thrown across the chest so as to place on the opposite shoulder. (2) It may be thrown forward beneath the clavicle onto the second rib. Here the coracoid process is felt distinctly on to the outer side of the head of the humerus. In this case the arm is shortened, the elbow is thrown backward across towards the scapula and there is a marked depression of the deltoid. (3) The head of the humerus is thrown backward onto the scapula. Here the head of the humerus can be felt and it follows the movement of the elbow. (4) It may be thrown forward, either against or beneath the coracoid process, here the acromian projects pointed and there is a hollow beneath it, the head of the humerus being felt anterior and rotating when the elbow is moved. If the hand of the patient is put on the opposite shoulder the elbow will be thrown out.

Treatment - The principal point in the reduction of shoulder dislocation is extension. (a) Take a bandage and wrap it around the chest under the arm and to cross above the shoulder to fix the scapula permanent. Put on the bandage closely then apply a strong bandage around the arm above the elbow leaving a loop in the lower end of the bandage to put around the operators neck. Apply extension to the arm and manipulate the joint. The best position is to have the patient sitting up erect upon the stool. Then strong extension is applied by means of the loop the dislocation will be reduced. In some cases it may be necessary to apply the knee as a fulcrum, guiding the head of the humerus into position by the movement of the arm.

Put the patient on the back and place a soft pad in the axilla. As before place a bandage around the arm above the elbow leaving a long enough loop to go around the arm of the operator. Place the foot in the axilla and apply strong traction with extension outward until the humerus is pulled far enough out to allow its head to slip in and downward using the arm as a lever to push the head of the humerus inward and upward while pulling the arm downward and forward, guiding the head of the humerus with the fingers.

(3) Patient sitting on the stool place the knee in the axilla with the foot on the stool and the hand on the shoulder to produce fixation. With the other hand depress the elbow over the knee, pulling downward to overcome the tension of the muscles and continue this pulling until the head of the humerus is pulled out, then use the other hand to guide the head of the humerus into position while gently getting go the traction downward.

(4) Place the patient on a low stool, take the arm at the wrist and raise it perpendicularly above the head, fixing the acromian process by holding one hand on it, then pull upward, giving a semi-rotatory movement down. Use one hand to lift up and the other to guide the head of the humerus, pulling the arm down by

the side of the patient and hold the head of the humerus in position while placing the other hand in the axilla.

(5) Flex the arm and turn it out as far as possible from the chest, then carry the elbow forward and upward. Rotate the arm inward and lower the elbow.

If forward dislocations always extend downward and backward. If the dislocation is backward give extension forward.

(6) After reducing a shoulder dislocation always put a small pad in the axilla and bandage the patient's arm to the chest for sometimes, giving treatment every day to keep the tissues relaxed and tonic.

Lower extremities - In many cases we find chronic dislocations in the form of slight luxations, especially of the hip joint.

Dislocations of the toe are common, especially in the case of bunions where a dislocation of the joint of the great toe is found. The important points in the treatment is the relaxation of the muscles and ligaments and the development of a thorough blood circulation. In adjusting the toes apply gentle extension and pressure, relaxing the small bones of the foot and replacing by pressure over the bunion. After the reduction keep in place by a small cotton pad between the toes.

The ankle joint. Both the tibia and fibula may be forward, backward, inward or upward, usually two of these go together. Sometimes we find dislocations of the small bones of the foot as in Norton's toes. This is very painful, the dislocated bone impinging on the nerve supply and producing intense pain. The most common condition is where one of the small bones is pushed upward in connection with flat foot. In treating the ankle dislocation place the patient on the back, raising the limb to a right angle. Have the limb held in fixation by an assistant and then apply strong traction on the foot, drawing the ankle backward into its normal position.

Knee Joint. Here we find the tibia dislocated forward or luxated backward or an inward displacement of the fibula, the tibia being thrown in the inner side of the joint, the condyle of the femur resting on the external semilunar cartilage.

The tibia may be dislocated outward, the condyle of the femur resting on the inner semilunar cartilage.

Treatment - Apply strong traction with extension. The great danger is setting up of an inflammation. To obviate this make the patient take absolute rest. In a slight backward luxation place the patient on the back with the leg flexed at the knee over the edge of the table supporting the foot between the knees of the operator with the hands work in the popliteal region catching the muscles and stretching them out laterally away from the head of the femur. After this the tibia and fibula are drawn forward, the limb being slightly rotated.

The Hip Joint. There are different varieties of hip dislocations. The head of the femur may be dislocated - (1) upward and backward onto the dorsum of the ilium. In this case the limb is shortened, toes inverted, lessened movement of the limbs with a flattening of the hip. If the condition continues the toes rest on the other foot, the knee and foot being turned internal, the knee slightly forward so as to rest on the thigh of the other limb just above the knee.

(2) Forward and downward onto the obturator foramen. This gives us a thyroid dislocation. Here the limb is two inches longer, the head of the femur being felt easily in a thin person. There is flattening on the side of the hip, the body being bent laterally forward, toes pointed to the ground, foot rotated outward and the knee slightly flexed.

(3) Head of the femur drawn back onto the sciatic notch, the head of the bone resting on the muscles. Here there is an inch or more of shortening, the knee and foot turned in, toe pointing to the ground or resting on the ball of the great toe of the other foot. In this case there is a slight rotation and flexion possible.

(4) Forward and upward dislocations onto the pubes. Here we have the limb shortened, knee and foot turned out and no possible rotation, the head of the femur is distinctly palpated over the pubes.

Treatment - (1) The contracted muscles must be relaxed. In relaxing the muscles use the limbs as levers, the trochanter of the fulcrum to cause the head of the femur to get into place. In hip dislocations the general method of treatment is extension, rotation and pressure over the point of enlargement.

(2) Bend the knee on the thigh and the thigh on the abdomen, then grasp the ankle in one hand and with the other guide the thigh while giving a rotatory movement on the femoral axis, then give a sudden extension and jerking movement while keeping up the traction.

(3) Flex the knee and rotate internally to loosen the attachments of the head of the femur. Then apply strong pressure so as to free the head of the femur and force it towards the acetabulum. The flexed knee is rotated outward and extended so as to draw the head of the femur into the acetabulum.

(4) Place the ankle of the dislocated limb across the knee of the other limb with the patient sitting on the stool. With the knee flexed place one hand at the hip joint, place the thorax on the knee, pressing it down to a right angle with the hand holding the angle while the patient is relaxed as much as possible, then suddenly jerk the limb off the other leg guiding the head of the femur into its normal position.

(5) Patient on face, put the knee in flexure, pull up on the foot and rotate slowly inward around a semi-circle and outward, applying strong traction while giving this movement.

(6) Rotate inward the flexed and slightly abducted thigh to free the head of the obturator foramen, then use the Y ligament as a fulcrum while the internal relation is carried downward and

extension takes place, the head of the femur being forced into the acetabulum, with a jerking movement.

(7) Flex the thigh inward then circumduct to drive the head of the femur out, then abduct and evert the limb with a slight outward jerking movement. rotate outward and external

(8) Flex and rotate inward, then/ grasping the trochanter and forcing it forward towards the acetabulum.

(9) Flex and abduct the thigh downward and backward, placing the hand against the head of the femur so as to press downward under the rami of the pubis, then abduct with flexure suddenly jerking the limb outward and downward.

(10) Place the patient on the sound side, hyper-extend the limb strongly, then draw it backward. This causes complete relaxation of the muscles around the head of the femur. Repeat this until the muscles are relaxed then flex the thigh and lift the head of the femur over the chest of the pubes and allow it to drop into the acetabulum. This is a simple case will reduce the dislocation. In some cases however, it will only relax the soft tissues and prepare for the reduction process.

The process of reduction. The patient lying face downward, trunk on table, the ilia resting on the end of the table. Allow the sound limb to fall down gently over the end of the table. Stand against the sound limb facing the dislocated limb, then flex the dislocated limb to a right angle, place the knee at the back of the flexed limb allowing the weight of the body to pull down and out, then rotate the limb outward and then inward allowing the weight of the body to come down on the flexed limb. This will bring the head of the femur to the level of the acetabulum. Guide the movement of the head of the femur with the other hand while the limb is rotated slightly outward and slightly inward giving a slight jerking movement and increasing the extension until the head of the femur is in front of the acetabulum.

Curvatures.

One point of importance in the discussion of spinal curvatures is that these curvatures are to be looked at from the standpoint of mechanical structure, not the anatomical. In connection with the causation and the continuance of the spinal curvature the body is to be regarded as a unit, the spinal deviation representing the change in the structural alignment of the body line, especially the central gravity line in relation to the longitudinal axis of the body and the rotation of the lateral structures around the central spinal axis.

Motion and locomotion are to be regarded as the continuously changing elements in the axis and the axial elements of the body.

(a) The body is movable in all its parts and so is the spine,
(b) The parts are so fitted together that the gravities if normal around a fixed point, viz., the gravity center of the body. All curvatures of the spine are produced by the efforts to retain the body or certain of its parts in such a position that the movement of the body will take place around this gravital center. Hence the gravital center that is subject to error in connection with the primary cause represents the center for spinal mobility. The spine is the great seat of deviation because it is the tubular canal that retains the upright position of the body and protects a great mass of nerve tissue from compression or injury. The spine consists from this mechanical standpoint of two parts -
(a) the motor agent representing the generating force in connection with the nerve tissue.

(b) The structural parts by means of which the force generated is converted into use. The former is represented by the nervous tissue and the voluntary spinal muscles. The latter is represented by the osseus, osseo-ligamentous and cartilagenous structures. In this way the spinal muscles under the control of the will and under the direction of physical balance in relation to the gravital center form the basis of all motion and locomotion. Thus there meet in the nervous tissues in the spinal cord as it is increased in the spinal column two sets of impulses. Those coming from the brain in connection with the will and those coming from the rest of the body in its relation to the gravital center. These impulses are coordinated in the spine, resultant movements taking place in connection with nerve waves which are transmitted to the different parts of the body, hence, stability and mobility depend upon the coordinated inter-relations of the muscular, nervous, osseus and ligamentous parts of the spine. Any deviation from the normal must arise therefore, from (a) some perversion of the muscular nervous apparatus which is the basis of stability; (b) Some lack of uniformity in the structure of the skeleton, osseus, muscular or ligamentous, interfering with uniform bilateral mobility. This means that the change which takes place represents an alteration in the vital equilibrium. In the spine under these conditions there is a tendency of the spine and its parts to assume certain definite curves in accordance with its surroundings. Those conditions that modify the spinal curves may be classified as two-fold - (a) The base on which the spinal structure rests and is built. (b) Change may take place also from the standpoint of the burden which the spine has to bear. The natural curves of the spine are so arranged as to give symmetry to the body and to preserve an even balance between the base and the burden.

So long as this balance is preserved the spinal curve will remain normal but as soon as this balance is interfered with deformity will be found. In the base we find the three-fold arch in connection with the pelvis and the two extremities. Anything that interferes with this arch will throw the spine out of its normal position or cause a part of it to deviate. The burden of the spine is represented by the head, the neck and the visceral cavities. Any deviation from the normal in these will also throw the spine out normal condition. Hence, any change in the body from the head to the foot may be a producing cause or a maintaining cause of spinal deformity. A spinal curvature therefore is any variation in the state of the normal curves in the spinal column. Ordinarily we find three normal curves - the arch of the neck, the posterior dorsal curve and the anterior curve in the small of the back. These may be obliterated, exaggerated or confused. The body is an erect structure with three arches below which act as a base, the spine itself forming the upper mass of the body and balancing bilaterally the body mass on either side of the spine. Therefore, there are three parts to be preserved in integrity by the muscles in obedience to the will and regulation of the gravital center. These three are the base, the burden and the spine. They are intra-dependent on each other in the preservation of the true position of the body. Hence curvatures are (1) intrinsic, when the cause is in the spine itself either in the muscular or nervous system producing the force or in the osseo-ligamentous structure which converts the force into mobility. (2) Arising from irregularity in or deviation of either of the three arches on which the body rests or in the mass of the spine, e.g., if the axis of the ankle, the knee, the hip or the pelvis is changed this will interfere with the base of the spine. Again if an arm is lost or an individual uses one arm in excess, if the ribs deviate, if there is greater tension in the muscular system on one side than in the other there is an interference with the bilateral uniformity of the spine. Secondary to these changes, changes take place in the functioning of the abdomen, the thorax, the cranium and the spinal canal.

Etiology - The primary cause is to traced to traumatism involving the spine itself. Also physical forces acting directly or indirectly in the spine through the limbs or the pelvis. Secondly disorders of the organs of the body throwing unnecessary weight on the functional action of the spine or particular parts of the spine. The predisposing causes are general weakness, prolonged ill-health, rickets, over-rapid growth, tuberculosis, any one-sided work or attitude of the body, injury to the chest, changes in the pelvis, abnormal growths, etc. In some cases it is congenital due to malformation. In most cases it is acquired, being developed in connection with lack of muscular development lack of proper nutrition, atrophy of muscles resulting from central changes, hypertrophy of muscles also from central changes.

There are three common types of curvatures -

(1) Scoliosis, this is the most common, it is lateral curvature. Here we have lateral deviation from the median line, most commonly to the right in the upper dorsal area. Frequently we find a compensatory deviation to the left in the lumbar region. This type of curvature is said to be due to the fact that most people are right handed. Very commonly it is found from 13-18 years of age. The vertebrae are rotated so that the spinous processes point towards the concavity of the lateral curve. The bodies of the vertebrae next to the concavity become thinner on account of absorption, the inter-vertebral discs also become thinner on account of pressure and resultant absorption. The ribs then become distorted, depressed on the concave, pressing outward on the convex. The ligaments on the concave side are contracted, on the convex side stretched.

(2) Lordosis. This is found commonly in the lumbar region, representing an exaggeration of the normal curves in this region, The convexity is forward and is produced by deformity. Frequently associated with abdominal diseases of some kind, some condition found in the cervicle and upper dorsal regions. If both of these conditions are found we get the straight spine. This is frequently compensatory to hip-joint disease or pelvic trouble.

(3) Kyphosis. Here we have a slight posterior curve or an exaggerated posterior curve sometimes pointing to an angle. In most cases it is found in the dorsal region due primarily to muscle weakness or some form of strain in connection with the dorsal vertebrae. In slight cases excessive relaxation of the ligaments and muscles. Posterior curvature is exaggerated because the soft tissues are enabled to keep the structure of the spine normal. In severe cases there is an absorption of the inter-vertebral discs and bodies of the vertebrae terminating in some cases in some form of Pott's disease.

Treatment - As the spine deviates from the normal we find- (a) structural deformity and (b) functional disturbance of the vital organs due to derangement in the vertebrae and impingement on the nerves and blood supply. In alterations of the shape of the spine we find symptoms of compression.

(1) First point in treatment is to check developments in deviation. If we are not able to do this it may be advisable in some cases temporarily to use artificial means to prevent a continuance of the curvature.

(2) If we can stop the development the next step is to make the spine retrace its steps in the curvature development. In this way we tend to restore to normal. This is generally an easy matter if we get the case in its early stages. If however, the case is in the later stages of curvature it is impossible to restore it completely to normal and the attempt should be made to establish compensation so as to give the greatest freedom to the spine and the spinal and trunk cavities. As the curvature is purely mechanical in its development its correction must be also purely mechanical.

The osteopathic treatment is based on the primary principle (a) of continued mobility and (b) articulation as the basis of improved nutrition and tonicity.

(1) Relax all the muscles along the entire spine, especially along the seat of the curvatures.

(2) Follow this by special articulation treatment applied to each vertebrae, attempting to replace the vertebrae by articulation. Then treat the curve by giving what is called the springing treatment to the portion of the spine. In lateral curvatures we find the most difficult curvatures to correct, especially those in the dorsal interscapular area, because of the fact that there is a complication of the ribs. Sometimes the vertebral end of the rib is twisted - sometimes it is dislocated.

(3) In dealing with symmetrical curvature where no single vertebrae deviates from the normal spine, but the whole column gradually deviates use the method of springing the spine followed by articulation to arrest, straighten and strengthen the spine. If the patient is unable to sit up or walk in this case it may be necessary to use orthopedic apparatus to strengthen the patient and give the spine support so that the patient can walk about. If such is used it should be kept on only a part of each day the rest of the time the patient resting in bed.

(4) Lordosis. In this case give thorough extension to the spine, attempt to spring the spine backward by placing the patient on the flat of the back with the lumbar spine at the edge of the table springing downward with great care. This should be followed by articulatory treatment.

(5) In Kyphosis. Place the patient on the face, grasp the shoulders, drawing the head and shoulders of the patient over the edge of the table until the upper border of the curvature is just above the table. Place the thumbs on the spinous processes at the upper border of the curvature, head and shoulders bent down, then apply pressure with the thumbs while someone raises the head and shoulders upward. Continue this treatment downward along the vertebrae involved. While this treatment is being given someone should grasp the ankle of the patient and give strong strong extension so as to pull apart as far as possible the vertebrae involved in the curvature. In the upper dorsal vertebrae if the vertebrae does not amount to what is called the hump-back we can apply treatment with the patient in the sitting posture. Place one hand and arm under the axilla bending the head and shoulders forward, then apply pressure on the spinous processes involved at the same time giving a slight lateral movement diagonally.

(6) In Scoliosis place the patient on the face with the thumbs at the side of the first spinous process involved. Standing at the side of the table towards the convexity while an assistant grasps the shoulders and another grasps the limbs just above the knees, slowly moving the limbs upward and outward to relax the muscles. When the body is under this strong extension apply strong pressure at the sides of the spinous processes,

giving pressure laterally. In upper dorsal scoliosis we can apply the same kind of treatment with the patient sitting as under NO. 5.

(7) In all cases of curvature of the spine give general circulatory treatment, also treatment to establish nutritive conditions. In addition see that thorough elimination is established especially in connection with the lymphatic system.

(8) Attend carefully to the diet and hygiene of the patient. At first give the patient absolute rest. As the patient becomes stronger increase the diet and make the patient take graduated exercise, particularly directed to the strengthening of the muscles in the affected region.

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